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A Compleat Body OF *Chirurgical Operations*,

Containing

The Whole Practice

OF

SURGERY.

WITH

OBSERVATIONS and REMARKS on each Case.

Amongst which are Inserted, the several Ways of Delivering Women in Natural and Unnatural Labours.

The whole Illustrated with Copper Plates, Explaining the several Bandages, Sutures, and divers useful Instruments.

By M. *de La Vaugnion*. M. D. and Intendant of the Royal Hospitals about *Paris*.

Faithfully Done into *English*.

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THE PREFACE.

CHirurgery or Surgery (*as we ſhall write it in compliance with the preſent uſage*) *is an Art which inſtructs us how to cure a Multitude of Diſeaſes incident to the Bodies of Men, by the help of Manual Operation. This is one of the three principal Members of the Art of Phyſick, without which it would be lame and imperfect; and however Cuſtom has made it a ſeparate Art, and a ſort of Inferiour Employment; yet it is evident it does not require leſs Study, Application, and Knowledge, than the other Parts of Medicine, and in many Reſpects, for the Certainty and Expedition of the cure, deſerves to be preferred before them. Many Diſtempers indeed are conquered by a Regular Diet, and the aſſiduous Uſe of proper internal Remedies; but on the contrary, there are others which are invincible by any milder way, and require the uſe of Inſtruments and external Applications, which alone are capable of giving certain and effectual Relief to the languiſhing Patient.*

The Invention of Surgery is aſcribed to Æſculapius, *whoſe two Sons* Podalirius *and* Machaon, *are celebrated by* Homer *for their rare Skill and Dexterity, and the great Services they did in curing the wounded Men in that famous Expedition againſt* Troy. Chiron *and his Pupil* Achilles *are extolled for their extraordinary Knowledge of Simples, inſomuch that Ulcers which require the Skill of a finiſht Surgeon to cure them, are ſtill called* Chironia, *and that Plant with which* Achilles *is reported to have cured* Telephus *after he had wounded and defeated him, ſtill bears the Name of* Sideritis Achillæa. *But the firſt who has committed any thing of this kind to writing, was the Great* Hippocrates *the ſeventeenth in Deſcent from* Æſculapius, *whoſe Chirurgical Pieces* of Fractures, Of the Articulations, Of reducing Bones by Machines, Of Wounds in the Head, *&c. are not eſteemed by the learned World, inferiour to any of his Writings in the other Parts of Medicine. After this great Man ſeveral of his Country men made Improvements, and this Art for a Series of many Ages, ſeemed as it were confined to the Natives of* Greece. *The next who applied themſelves to improve the Inſtruments and Operations of Surgery, were the* Arabians,

bians, *of which the Writings of* Albucasis, *and some portions of* Avicenn *are the only Remains. In the last place, about two or three Centuries, or since it was introduced into* Europe *by* Guido de Cauliaco, Joannes de Vigo, *&c. who ought justly to be accounted the Fathers of the Modern Surgery; but as yet it was rude and imperfect till* Ambrose Parry, Fab. Hildanus, Fab. ab Aquapendente, *&c. by their successful Labours advanced it to a higher pitch than their Predecessors; however it was impossible but it must be deficient for want of the later Discoveries in Anatomy, and since that Science has been cultivated, and the Structure of Humane Bodies in many particulars better known, Surgery has necessarily received great Advantages. Since this new Light has been introduced (which has made the productions of a few Years exceed those of many preceding Ages) no Nation has been more Industrious to bring Surgery to perfection than the* French; *and this is owing almost entirely to the Master Surgeons of the School of St.* Cosmus, *who have applied themselves with the last Diligence, to instruct every Member of their Body in all parts of an Art which is of so great Use and Importance to Mankind.*

But our present Design is not to set forth the Nature or Excellence of this Art, or give a History of the Degrees by which it has been perfected; and therefore we shall content our selves with giving the Reader an Account of the Volume we here present him with, and informing him what he may expect to find in it. Antiquity has produced many excellent Pieces; but the great Discoveries in the Humane Microcosm, have opened a large Field for Improvements, and the New Philosophy has furnished us with more sensible Accounts, than the Obscure and Uncertain Principles of the Ancients could possibly assist us to find out. This is so evident and clear, that it is a surprizing Thing, that Surgery should not be earlier advanced by it, and all along till very lately, the old beaten Path trodden without any regard to the Modern Inventions. Our Author has reformed this in a great Measure in the following Work, in which he has presented the Reader with such Instructions for performing the Operations, and such Reasons for the Accidents which attend them, as are agreeable to the Structure of the Parts, and the New Doctrines in Philosophy. The whole Volume is an entire System, which contains all the Operations in the Practice of Surgery, and the

Different

Different manners of Performing them now in Uſe, and they are all delivered in a moſt exact order. For Inſtance, in the firſt place he premiſes the Definition, for the giving his Reader a Succinct Account of the Subject under his conſideration; Then he explicates the Nature and Cauſe of the Diſeaſe which he grounds on the Structure of the Part, and this enables the Artiſt to give a Rational and Satisfactory Account of what he propoſes to perform, by this means to diſtinguiſh himſelf from Empirick or Ignorant Mechanick, who can give no other Reaſon, than the Practice of his Maſter. In the next place he delivers the Signs, as well thoſe which ſerve to detect the Nature of the Diſeaſe, as thoſe which aſſiſt the Surgeon to make a Juſt Prognoſtick of the Event. After theſe neceſſary Premiſes, he proceeds to the Operation it ſelf, in which he gives Inſtructions extending even to the moſt minute Circumſtances which can happen, to this he ſubjoyns the Dreſſings, ſeveral ſorts of Bandages, and ſo proceeds through the whole Method of treating the Patient, preſcribings in every Caſe a proper Regimen, and Medicaments to Compleat and perfect the Cure. In the laſt place, which is not the leaſt curious of the whole, he adds

a great Number of extraordinary and inſtructive Obſervations, extracted out of the Writings of Kerkringius, Bartholine, *the* German Tranſactions, *and other Authors, but principally from* Fabricius Hildanus, *whoſe Merit is acknowledged by all knowing Judges. In ſhort, to avoid any farther expatiating on particulars, whoever ſhall peruſe this Piece with Care from beginning to end, will find an ample Collection of uſeful and ſolid Knowledge. But I ſhall not undertake to preingage the Readers Favour, but rather chuſe to abandon this Work to his impartial Cenſure, and leave him to the Liberty to embrace what he finds in it agreeable to Reaſon and Experience, and to Reject the Reſt.*

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A COMPLEAT BODY, OF *Chirurgical Operations.*

CHAP. I.

Of Operations in General.

AN Operation *is the Industrious and Methodical Application of the Surgeons Hand, to the Parts of a Humane Body, to restore them to their Natural State.*

There are Five *Species* of Operations, *Synthesis, Diæresis, Exæresis, Taxis* and *Prothesis*, [or Uniting, Dividing, Extracting, Reducing, Supplying.]

Synthesis is *the dexterous reuniting parts divided*, as Wounds by the help of Sutures.

Diæresis is *dividing with judgment parts which require division*, as the opening Abscesses.

Exæresis is *the Artful extracting extraneous Bodies, or any noxious Substance*, as Bullets, Matter, &c.

Taxis is *Restoring to their Natural Site parts displaced*, as the Guts fallen into the *Scrotum*.

Prothesis is *the adding by Art and Industry useful parts deficient*, as Artificial Legs and Arms. This last is not properly termed an Operation.

Sometimes several of these concur, *viz.* in an Abscess where an aperture is made, the *Pus* let out, the parts reunited, and the whole incarned.

The *CAUSE* of Operations are Diseases incurable, except by an industrious Application of the Hand. Thus Parts mortified, Bones very much shattered require *Amputation*, *Extravasated Blood* on the Brain *the Trepan*, the Strangulation of the Gut in the *Scrotum*, the *Bubonocele*, with an infinity of the like nature amply treated of in this Course of Operations.

The *SIGNS* which instruct the Surgeon in what cases an Operation is necessary, are taken from the various Diseases to which Humane Bodies are subject, and shall be distinctly delivered in treating of each particular.

In each *OPERATION* it is necessary to know what is to be done *Before*, *At the time of performing it*, and *After it is over*. *Before the Operation*, all necessaries must be provided for the well performing it. *During the making it*, all the Rules prescribed must be carefully observed, and *After it*, Care must be had for the Perfecting the Cure.

Farther there are four Things to be regarded, *Of what Nature the Operation is*, *For what Reason it is attempted*, *If Necessary* and *Possible*, and *The Manner of performing it*. *The First* may be learnt in the Definition. *The Second* from considering the Nature of the Disease incurable by other means. *The Third* must be determined by comparing the Disease, the Strength and Constitution of the Patient, and the Part affected. *The Last* is fully delivered in the Rules of Art, prescribed in their proper places.

If the Operation can be deferred, it is best to wait for the most favourable Season, *Spring*, *Autumn*, *Winter* and *Summer* having all different Advantages conducing to a happy Cure.

The *Spring* puts new life into the Blood and Spirits concenter'd by the Winters Cold, raises a kind Fermentation, and exalts them to the Surface of the Body.

The Autumn sweetens and calms the Blood, grown sharp and sour by the loss of its Spirituous and Balsamick parts, dissipated by the immoderate Heats of the Summer.

The Winter closes the Pores, obstructs Transpiration, abates the Circulation, which has scarce vigour enough to animate the Parts.

PROPER DRESSING must be applyed on the part after the Operation is finished, the Neatness of which is a great

great comfort to the Patient, by perſwading him He is in the Hands of an able Surgeon. This ſets his mind at eaſe, and Nature advances the Cure more equally. At the end of each Operation, the Reader may find an exact Method of Dreſſing.

The *CURE* varies according to the different Operations, to which we ſhall remit the Reader.

THE REMARKS annexed to each Operation, we hope will be uſefull to thoſe who peruſe them; They are extracted out of the Beſt and moſt Famous Practitioners of *Europe*, eſpecially *Fabricius Hildanus*, a Perſon of well known Merit, and highly valued by all Phyſicians and Surgeons. Among other of whoſe Obſervations this is one, *Cent.* 4. *Obſ.* 59. A certain Big-bellyed Woman in her eighth Month, received a Gun-ſhot wound on the Right Thigh, not with any Bullet, but a Pellet of chew'd Paper only, which enter'd the Muſcles a Fingers length. The Child in the Womb was ſo much affected with the Blow, that it dyed inſtantly; ſome time after the waters in which the *Fœtus* ordinarily ſwims, made their way. The Succeeding Day the Woman was delivered of a Child, Dead, Black, Flabby and Stinking: After ſome Time ſhe began to recover, and the Wound was compleatly healed in 24 Days.

CHAP. II.

Of the Sutures.

SUture is *a ſtitching of Wounds, to help their Reunion.* There are three Kinds of Sutures, *Incarning*, *Reſtringent* and *Conſervative.*

The Incarning have their Stitches ſeparate.

The Reſtringent have their Stitches continuous.

The Conſervative are ſuch as are made in Great Wounds, to prevent deformity.

The *Incarning Sutures* are the *Interrupted*, the *Quilled*, the *Twiſted*, the *Claſping* and the *Dry Suture.*

The *Reſtringent* made to ſtop a flux of Blood, are the *Glovers*, the *Shoomakers*, the *Taylors*, that *from without inwards*, that *from within outwards*, that of *Celſus* made in form of a Croſs.

* There are but four kinds of Sutures neceſſary, the *Interrupted*, the *Twiſted*, the *Dry*, and the *Glovers Suture*. The others are uſeleſs and prejudicial, the Figure of which nevertheleſs I have annext, in the Plates at the end of this Work, to gratifie the Curious.

The *CAUSE* of *Sutures* are *Wounds Recent*, or Diviſions of the ſoft Parts from ſome external Cauſe.

Wounds are *Simple* or *Complicate*. *Simple Wounds* are a *bare diviſion of the Fleſh, not accompanied with any ill Accident.* On the contrary,

Complicate Wounds are *ſuch as are attended with diverſe Accidents*, as Pain, Inflammation, Contuſion, loſs of Substance, *&c.*

THE DIAGNOSTICK SIGNS. In *External Wounds* the Diviſion of the Fleſh is viſible, but *Internal* are not ſo eaſily diſcovered.

If a Wound penetrate the Breaſt, and the Patient bring up Blood in Coughing, you can hear the Air come out of the Wound in expiration, it is a ſign *the Lungs* are wounded, and the Veſſels hurt.

If there be a plentiful effuſion of blood from the Breaſt, and the puſh is directed towards *the Heart*, there is ground to fear that important Organ is hurt.

If the Blood which comes from it be Hot, Black and Boiling, it is probable *the Right Ventricle* is hurt, but if it be of a Florid Scarlet colour and Frothy, it is *the Left Ventricle* which has received the Thruſt.

When the Heart is wounded, the Arteries beat feebly; The Face turns Pale, the Extream parts grow chill, and the whole Body is covered with a cold Sweat.

If *the Diaphragm* be wounded, the Patient can ſcarce breath, feels a great pain in the Back, Shoulders and Arms.

If *the Spinal Marrow* be hurt, the Nerves are relaxed, all Senſe loſt, ſometimes the Seed and Urine come away involuntarily.

If *the Aſpera Arteria* be hurt, the Patient ſpits Blood, has a great pain towards his Back, the Voice becomes Hoarſe, and the Tongue Dry.

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* *See all the ſeveral* Kinds *of Sutures or Stitches, from Fig.* 57, *to* 83.

If

If *the Guts are* hurt and the *wound be ſmall*, there happen Syncopes, Inquietude, Convulſions and Fever. If the Patient vomit or void blood by Stool, or the Fæces come forth, it is certain the *wound is large.*

If the thruſt be in the Belly, and there happen a plentiful effuſion of Blood, it is a ſign *the Great Artery or Vena Cava* is cut.

When *the Stomach* is wounded, the Patient has cutting Pains, Bilious Vomiting, Cold Sweats, the Hiccough, loſes all Appetite, and the Aliment comes forth of the wound, if it be very large.

If the wound be on the right Side a little above the Navil, and penetrates far in, and ſomething obliquely towards the Baſtard Ribs, and black Blood come plentifully from the wound, the Party wounded feels great pain in theſe parts, vomits Bile, and lies on his Belly more commodiouſly, than in any other poſture, you may pronounce, *the Liver is wounded.*

If the wound be on the left Side deep, and near the Seat of the Spleen, and a black Blood iſſue from it, it is a ſign *the Spleen is hurt.*

In wounds of the Kidneys, the Patient piſſes with great Difficulty; The Urine is Bloody, and a pain is felt in the Groin.

When the *Sphincter of the Bladder* is hurt, the Urine flows out involuntarily, and if *its Bottom* it comes out in the Belly, and through the Orifice.

There is reaſon to fear, *the Brain and its Meninges* are Hurt, when the Fracture of the Skull is of a large extent, the Eyes are Swoln and full of pain, the Face is red and inflamed, the Patient is *Comatoſe*, a Fever is kindled, with a hard Pulſe, ſhaking Fits frequently recurring, and Vomitings: He voids Blood by the Noſe, Mouth or Ears. The Excrements and Urine come away involuntarily, and a a Syncope, Vomitings, Convulſion, Delirium, Lethargy and Apoplexy. The Lungs and the Liver Apoſtemate, which is diſcovered by a fixed Pain on the ſides of the Breaſt, or the Region of the Liver, or by frequent Rigours. All or ſeveral of theſe ſigns concurring, are ſufficient to ſhew the Brain is hurt.

When *the Nerves are hurt*, Inflammation, Pain and Convulſion ordinarily ſucceed.

* THE PROGNOSTICK SIGNS. *Wounds of the Head* are moſt commonly Dangerous, by reaſon of the nicety of the Brain and its Membranes, which ſeldom eſcape alteration, when the Head is wounded.

Great Wounds of the *Dura-Mater* are Mortal, becauſe of the diviſion of its Blood-veſſels, but if the *Wound be ſmall and remote from the Sinus's* or principal Veſſels, the Patient may well enough eſcape.

† Wounds in the *Spine of the Neck*, *Aſpera Arteria* and *Oeſophagus*, are Mortal: Thoſe in the Blood-Veſſels and Nerves are dangerous, it being difficult to ſtop the Blood, if the wound be large.

Wounds of the Breaſt are not very dangerous when they are external, but if they penetrate, there is much to be feared upon the ſcore of the Lungs and Heart.

Wounds which penetrate the Ventricles of the Heart are Mortal, and the great Flux of Blood inſtantly kills the Patient, but if the wound *be near its Cone*, the Patient may live ſeveral Days. *Wounds of the Pericardium* are Mortal, as well as thoſe of the Lungs And ſo are

Wounds of the Thoracick Duct and *Receptacle of the Chyle*, by reaſon no New Blood can be prepar'd for defect of this Juyce.

Great Wounds of the Diaphragan are Mortal, becauſe reſpiration is interrupted.

Wounds of the Stomach and Guts are Mortal, it being difficult to reunite them by reaſon of their periſtaltick Motion. The Chyle and Excrements flow through the wound, and cauſe great Putrefaction in the lower Belly.

Wounds of the Meſentery are not Mortal, except the Blood-Veſſels, Lacteals and Lymphaticks are cut, in which *Caſe the Blood* and *Lympha* flowing into the Belly, make great Putrefactions.

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* *Theſe Prognoſticks are moſtly taken from that memorable Aphoriſm of* Hippocrates, *Sect.* 6. 18. If the Urinary Bladder, Brain, Heart, Diaphragm, Small Guts, Stomach or Liver happen to be hurt, the Wound is Mortal. *But theſe Wounds which are pronounced Mortal, are not always ſo, and many Inſtances to the contrary,* (*as in the Brain, Liver, Stomach, Guts,* &c.) *occurr in Authors, particulars of which would be too numerous to recite here.*

† *There is no reaſon to pronounce Wounds of the* Aſpera Arteria *Mortal, tho' the Cartilages of the* Larynx *happen to be divided. In deſperate Quinſies when the Reſpiration is hindred by the Tumour of the Throat, Phyſicians ſometimes adviſe an Inciſion to be made in the* Aſpera Arteria, *by which the Lives of many have been ſaved, otherwiſe deſperate. This Operation is called* Bronchotomia, *and the manner of performing it deſcribed by our Author,* Chap xviii.

Wounds

Wounds of the Lungs are not always Mortal, and those of the *Omentum* are only so upon the account of the Division of the Vessels.

Wounds of the Liver are Mortal, by reason of the numerous Vessels in that *Viscus*, which admit of no Application, besides that the Heart and Lungs suffer by communication of their Nerves, from whence proceed *Syncopes*, Vomiting of Bile, and Difficulty of Breathing.

Wounds of the Gall Bladder are Mortal, because this is the Receptacle of the Bile, by whose Irritation the Expulsion of the Excrements is made.

Deep wounds of the Kidneys are Mortal, because these are the Receptacles and Strainers, through which the Urine is percolated.

Wounds of the Ureters are Mortal, because the Urine falling into the lower Belly, corrupts its Contents.

Wounds of the Uterus are very Dangerous, or to speak more plainly Mortal.

To conclude; all *Wounds of the Great Vessels in the lower Belly* are Mortal, it being impossible to stop the Flux of Blood.

The OPERATION.

The Instruments here to be used, are the *Fingers*, *Needles* and *Thread*. You must have *Needles* of different Figures and Sizes, Streight, Crooked, Flat, all sharp and of well temper'd Metal. The Thread must be single or double, as the Nature of the wound shall require.

The Interrupted Suture.

To make this Suture, you must begin to clear the Wound from all extraneous Bodies and Coagulated Blood. A Servant must hold together the Lips. These Cautions are common to all Sutures. You must pass the Needle with the Waxed Thread in it, into the middle of the wound from without inwards, leaving a moderate Distance between each Stitch. You must pierce deep enough, and go to the Bottom of the wound, least an effusion of Blood there obstruct the Reunion.

If *a Wound have Angles*, you must begin the Suture there. Before you tye the Knot, you must bring the Edges of the wound together, which if they are not Level, will leave an inequality in Cicatrizing. If *Wounds have no Angles*, you must begin to tye that Thread which is in the midst, and

make a ſimple knot on the ſide oppoſite to the diſcharging of the Matter; on this knot you muſt lay a ſmall Compreſs of Linen Cloth Waxed, on which you muſt make a ſlip-knot, which may with eaſe be undone if any Accident happen.

If you intend to cover the wound after the Suture with an Emplaſter, you muſt lay a ſmall Compreſs on the knots to hinder its ſticking to them, which creates a great deal of trouble to the Patient in taking off the Dreſſings.

If any Inflammation happen, you muſt dextrouſly looſe the knots in ſuch manner, that you may cloſe all again when the Accidents are abated. But if the Accidents are ſo preſſing as to oblige you to cut the Threads, you muſt paſs a Cannulated Probe under them, and ſlide the point of the Sciſſars on the *Cannula*. After the Reunion is compleated, you muſt cut the Threads on the Probe, obſerving to put your finger on the knots to ſtay the Fleſh; and draw out the Thread gently, to prevent tearing open the wound.

In Superficial wounds you muſt uſe ſtreight Needles, in *Deep* ones crooked.

The twiſted Suture is uſed in the Hare-lip, of which in its proper place.

The Dry Suture.

This is only made in Superficial wounds, in places where we muſt be careful to avoid Deformity, as in the Face or Hands of the Fair Sex. This Suture is not very much to be depended on, becauſe moſt commonly it looſens. The *Manner of making* it is thus. Take two pieces of new Linen Cloth with their Hemms on, proportioned to the largeneſs of the Wound. The Hemms muſt be laid on the edges of the wound, then cut the Cloth into Digitations, at a convenient diſtance from each other. The number of Digitations muſt be equal to the number of Stitches you intend to make; to the end of each Digitation, ſow a ſmall Ribbon; then dip the Cloth in ſtrong glew, and apply it a Fingers breadth from the edges of the wound; theſe Ribbons muſt be tyed to each other in ſuch manner, that the edges of the wound may touch.

The Glovers Stitch.

This is made in great wounds of the Guts and *Scrotum*. *To make it*, Take a ſtraight Needle with waxed Thread: then take the two Lips of the Wound between the Thumb

Thumb and Fore-finger, whilſt an Aſſiſtant holds the Gut at one end: Then ſtitch it length-ways, paſſing the Thread beneath and over the Lips of the wound, in the ſame manner Glovers uſe to ſtitch their Leather.

Wounds altered by the Air do not admit of Sutures, theſe are not to be cured without Suppuration, becauſe the Nitre of the Air waſting the Unctuous parts of the Blood, which is the Balſam uſed by Nature for the uniting of Wounds, and keeping the Parts ſupple, the Fibres grow dry, the Pores are contracted, and dangerous obſtructions enſue. Beſides the Salts of the Air lodging in wounds, are changed into a Vitriolick Arſenical Matter, which corrodes and frets the Veſſels, hinders the Cure, and cauſes a Gangrene.

Sutures are not convenient in *contuſed Wounds*, which muſt ſuppurate to convert the Blood extravaſated between the Fibres and *Veſiculæ* into *Pus*. Nor in wounds *with great loſs of Subſtance*, whoſe Lips cannot be brought together to reunite. Nor *in the Bites of Venomous Animals*, as well upon the account of their Contuſion, as the continual irritation of the Venom, which moleſts the Part, infects the Maſs of Blood, hinders the Reunion. In this caſe the external Remedies muſt be moſt potent Reſolvents, and the Internal Cordials and Corroborants. Nor in *Diviſions of the larger Veſſels*, where the great Flux of Blood and Pledgits with Stypticks thruſt into the wound; Nor in wounds of the Breaſt, where the perpetual Motion obſtructs the Union. It is a queſtion among Practitioners, if Sutures may be made *on Bones laid bare*. I ſhall declare in ſhort my Opinion. If there be a Contuſion or Fracture in the Bone, an exfoliation muſt be procured, and ſince there is no better way to obtain this, than to expoſe the Part to be altered by the Air, you muſt not make any Suture in this Caſe. But if the Bone be ſound and entire, and you deſire to preſerve it from Exfoliation, a Suture muſt be made without delay, in which there is no danger; becauſe the Threads may eaſily be cut, if any Accident ſhall preſs. In the laſt place Longitudinal Wounds do not require Suture, the *Uniting Bandage* being ſufficient.

THE MANNER OF DRESSING is directed in each Operation, where Sutures are neceſſary.

THE CURE IN SIMPLE WOUNDS, conſiſts in reuniting the divided parts, in removing all external Obſtacles, ſuch as Coagulated Blood, and Extraneous Bodies, in bringing together the Lips, and applying Vulnerary, Agglutinating and Balſamick Remedies. Since

Since the Blood is the true Balſam which Nature makes uſe of for the Reunion of Wounds, the Surgeon muſt be careful to prevent all corruptions of this Noble Liquor, by extirpating the Seeds of Diſtempers, Rectifying its Fermentations and Digeſtions, and Reſtoring it to its Natural State.

To this purpoſe conduce *Clyſters* to cleanſe the lower Belly, Mild Purgatives, and laſtly Diaphoreticks which purifie the Blood, and ſweeten the Nutritive Juyce, v.g. ℞ *Diaphoretick Antimony*, ℥ß. *Crabs Eyes*, ℈ij. *Sperma Ceti*, ℈i. *Chalk*, ℈ß. *Salt of Lead*, *gr.* iv. *Give the Mixture in ſome proper Vehicle*, as a Glaſs of *Cardus*, or any other Sudorifick Water. Or, ℞ *Waters of Mint and Chervil*, ℥ijß. *Crabs Eyes*, ℥i. *Diaphoretick Antimony*, ℈i. *Salt of Wormwood*, ℈ß. *Treacle of Andromachus*, *Sperma Ceti*, *Elixir Vitæ*, *Syrup of Speedwell*, ā ℥i. Of this Mixture give ſome Spoonfuls from time to time till the Patient Sweat, and then cover him cloſe.

The ill impreſſions of the Air, muſt be corrected by Balſamick Applications, which muſt be Volatil, Saline and Oleous, Reſembling the Blood which is the Natural Balſam, ſuch are *Balſam of Peru*, *Oyl of St.* Johns *wort*, the *Juyce from Peel of Elms drawn in* Balneo Mariæ, *Oyl of Turpentine* allay'd with Balſam of *Peru*, *Balſam of Sulphur*, and preferrably to all others of the like kind, the *Balſ. Samech* of *Paracelſus* prepar'd with *Salt of Tartar*, *volatilized with Spirit of Wine*. But *Oyls by expreſſion* without other preparation are dangerous, as well upon the Account of their Viſcoſity, which makes them hurtful to the Nervous parts, rotting them, ſtopping the Pores, and hindring Tranſpiration as by a certain latent Acid, able to corrode Iron and Silver.

Sharp Medicines muſt not be applyed to wounds, Experience ſhewing us they keep wounds open too long, waſte the Fleſh and Blood, and by their Acrimony bring Pain and Fluxion. Only *Temperate Balſams* are proper to parts Replete with Blood, and *Temperate* inclining to Acrid and Bitter for the Nervous parts, which laſt require more deterging Medicines, ſince they commonly produce more Filth than other parts. Add to theſe Vulnerary Potions made of Decoction of proper Plants, as *Great Sanicle* or *Ladies Mantle*, *Ground-Ivy*, *Speedwell*, St. *Johns wort*, *Chervil*, *Crabs-eyes boiled in Woite-wine*, and drunk every part of which is Vulnerary. We muſt not uſe theſe Balſams if it be neceſſary to keep the wound open,

open, as in thoſe which enter the Cavity of the Breſt, for fear of any Matter which may happen to be lodged there, or any Inflammation or Contuſion; for here if the wound be cloſed too ſoon, we have no means left to prevent accidents. Suppuratives muſt be uſed, which are ordinarily made of *Turpentine, the Yelks of Eggs, with the Addition of a little Honey, Myrrh, Balſam of Peru,* and *Gum Elemi*, and after a laudable *Pus* obtained, treat the wound like a ſimple Ulcer with Mundificants, Sarcoticks, and Agglutinating Medicines.

Wounds then are cured by applying Balſamicks, removing extraneous Bodies, approaching their Lips, and retaining them by Bandage and Suture. *Hares-greaſe* is eſteemed excellent to draw extraneous Bodies out of the wound, whether the Part be rubbed with it alone, or mixed with *Unguent of Betony*, or made into an *Emplaſter with Gum-Arabick*. It is pretended *Radiſhes, Dictamnus* of *Crete* mixed with this Greaſe, have the ſame Virtue. Or ℞ *Crabs-Eyes, Hares-greaſe,* ā ʒß. *White Amber,* ʒiij. *Mix and apply them.* To theſe add, *Savin, Periwinkle, Crabs-Eyes*, which are proper Ingredients in vulnerary Potions, to expell all extraneous Subſtances.

Tents dipt in ſome good Balſam, muſt be kept in deep wounds till their bottom be cleanſed, that their Fleſh may grow up to their ſides, without which it would encreaſe too faſt, the Orifice cloſe, and the *Pus* and Filth lodge within, from whence Pains, Inflammations, Return of the *Abſceſs, Fiſtula's,* and deep *Cyſtis's*. But before any Tent be put in, it is neceſſary to conſider well, if no Nervous part lie on the ſide of the wound; in this Caſe Tents too long or big, will inevitably create acute pain, which irritates the Nervous parts, corrupts their Juice, and cauſes a dryneſs and extenuation of the Part. The Tent muſt not be very big, except it be in the middle; not filling the wound that it may have room to ſwell; its point muſt be ſoft for fear of Hurting the Fleſh, which begins to renew and grow again. Tents muſt not be too long continued, becauſe they are apt to generate a *Callus* on the edges of the wound, which obſtructs Reunion; but muſt be diminiſht by degrees, to give the Fleſh liberty to grow.

A Serous Humour gleeting from the Wound in the time of Cicatrizing, makes the Fleſh Flabby and Soft, occaſions excreſcences, hinders the Unition, and to Skinning Here Deſiccatives muſt be uſed to abſorb exceſſive Humidity,

Humidity, and moderate Aſtringents to correct the Laxity of the Fleſh, and give them a firm conſiſtence.

There happens at ſome times, an Inequal Roughneſs and Hardneſs in the *Cicatrix* after the Part is Healed, which proceeds from the Fibres of the Skin, not exactly meeting thoſe which they are ſeparated from, and the Pores and Channels which before the Diviſion were ſtraight and anſwering to each other, are confounded and diſplaced; and from hence the Nutritious Juyce being detained and ſtopped in the Part, produces a *Callus* in the Bones, and a *Cicatrix* in the fleſhy parts, eſpecially if Reſtringents and Deſiccatives have been employ'd, which contract the Pores, make the Fibres firm, and harden the Part.

WOUNDS CONTUSED eaſily putrefie, and this obſtructs the Cure; for this Reaſon, if the Contuſion be ſlight, you muſt have Recourſe to Suppuratives to ſeparate that which is mortified and bruiſed. But if the Contuſion and Wound be very great, and you have reaſon to fear Gangrene before you can obtain a Suppuration, you muſt make Inciſions into, and Scarify the Part, to give iſſue to the Blood, and ſuppurate the reſt with good Digeſtives, adding *Ægyptiacum* by way of precaution. From the firſt you muſt apply Topicks on the part, proper to prevent Corruption, ſuch as *Oyl of Wax*, with which rub the part, laying on the *Emplaſter of Cummin*, *Oyl of the Philoſophers*, Emplaſter of Laurel Berries, Or ℞ *Roots of the greater or leſſer Conſound*, *Flowers of Chamomil and Melilot*, ā ℥i. *Saffron*, ℈i. *Flour of Beans*, *Fenugreek*, ā ℥iß. Boil theſe in water firſt, putting in the Roots, then add *Wormwood*, *Powder of Cummin* ā ℥ß, mix theſe, and apply them outwardly. When the greateſt part of the Contuſion is overcome, rub in Spirit of *Sal Armoniack* deſtilled with *quick-lime*, which is an excellent Medicine.

GUN-SHOT WOUNDS are always attended with Contuſion, Laceration and Superficial Heat; for this Reaſon you muſt ſuppurate the Contuſion, which commonly begins to appear on the third or fourth Day, during which time, it is enough to take off the dreſſings once in twenty four Hours. After Suppuration made, and the Abſceſs formed, and the contuſed Matter reſolved, you muſt dreſs the wound with Mundificants, and clear it from all extraneous Bodies. *Spirit of Wine* and *Balſam of Peru*, muſt be added to the Digeſtives and Maturating Applications, to prevent the bruiſed parts from mortifying. *Spirit of Wine*

is

is excellent in Burns, and you ought to dip your Tent in it, before you lay Digeſtives and Suppuratives on them, becauſe Digeſtives are not always agreeable to the Nervous parts, and Spirit of Wine corrects their ill qualities. The Application muſt be laid on, ſo as to give vent to the Matter on all ſides, ¶ *Ambroſe Parry's* Balſam is proper for Gunſhot Wounds, which is made in the following manner. ℞ *Oyl of White Lilies or Violets*, ℔ iv. *Boyl in this Liquor ſome young Puppies, till the bones are diſſolved, add a pound of Earth-worms boyled in Wine*; Boyl all again, adding to the ſtrained Liquor *Venice Turpentine*, ℥iij. *Spirit of Wine*, ℥iß. Mix theſe and make a Liniment, which is excellent to appeaſe pain, and ripen theſe Wounds. After Suppuration uſe the following Mundificant, ℞ *Venice Turpentine*, ℥v. *Honey of Roſes ſtrained, Myrrh, Aloes, Miſtick, Round Birthwort* ā ℥iß. *Barley flower*, ℥iij. *Mix theſe for a Liniment, which imbibe and wet with Spirit of Wine.* You muſt continue to mundifie till new Fleſh grow up. If in the mean time any great putrefaction or corruption happen, you muſt add to the before-mentioned Remedies *Precipitate well edulcorated*, eſpecially if the Nervous parts happen not to be hurt. If Pains happen below in the Bones, *Oyl of Turpentine* is an excellent Remedy, eſpecially in the *Caries* of a Fiſſure.

WOUNDS FROM THE BITE OR STING OF VENOMOUS ANIMALS, require deep Scarifications of the part, applying to the wound *Oyl of Nutmeggs*, Vigo's *Emplaſter with* Mercury. *Juice of pounded Onions* is excellent for the Puncture of Spiders. Scarification is not neceſſary if the wound be not deep, as the Sting of a Waſp, or ſome ſuch like Inſect. In the Bites of Vipers or Serpents, you muſt ſcarifie the part, and cruſh a living Toad on it; or a dry one, if you cannot get one alive; if you macerate it in Wine or Vinegar, it will be more efficacious: A red hot Iron applyed as near the wound as may be, is a Remedy experienced by Mr. *Boyle*. The *Serpentine Stone* found in Snakes of the *Eaſt-Indies*, or that compounded of it, is a very good preſervative againſt the Bites of all Mad or Venomous Animals. Or in defect of this, the *Magnetick Emplaſter of Angelus Sala*, with the addition of an Ounce or two of *Crabs-Eyes calcined*. The contiguous parts muſt be rubbed with *Oyl of Scorpions, with a little Sugar of Lead* to prevent inflammation. The following Cataplaſm againſt the Biting of Venomous Animals, is generally

rally reputed good. ℞. *One ſharp Onion, one Clove of Garlick, Balm, Venice Treacle, Common Leaven,* ā ʒß. Beat all together into the form of a Cataplaſm. After the Venom is drawn out of the Wound, apply a good Balſam or a Digeſtive, with the addition of *Ægyptiacum.* Inwardly you muſt give *Spirit* and *Volatil Salt of Vipers, Spirit* and *Decoction of Crabs* to ſtop the progreſs of the Venom.

* WOUNDS OF THE VEINS AND ARTERIES, are always attended with great Flux of Blood, to ſtop which, apply *Crepitus Lupi,* which is a ſort of dryed *Fungus,* with a cloſe Bandage. This may be ſoaked in a *Solution of Vitriol of Steel, with a moiety of Salt diſſolved in ſome decoction of Mild, Vegetable, Reſtringents,* and applyed Cold with Stupes. If the wound be large, you muſt throw in *Bole-Armoniack,* or the *Caput mort. of Vitriol* well edulcorated. You muſt obſerve that all Stypticks whatever are uſeleſs, except they be kept firm on the part with a ſtreight Bandage. *Oak Moſs,* or *the Pith of Elder* pulverized and ſtrewed on the Wound, ſtop an Hæmorrhage, *Moſs of a Humane Skull* is a certain Remedy. The following *Reſtringent* is good, ℞. *Sharpeſt Vinegar,* ʒi. *Crocus of Steel,* ʒi. *Colcothar or dulcified Earth of* Vitriol, ʒß. Beat all together very well, and dip Rags with powder of the *Crepitus Lupi,* and apply it to the wound. If theſe means are not ſufficient, make a ligature on the Veſſels, according to the manner preſcribed in the Operation of the *Aneuriſm.* For the internal Medicines which ſtop Blood, thoſe wherein *Swines or Aſſes Dung* are Ingredients are to be preferred, and to thoſe which have *Nitre prepared with Antimony, Tinctures of Sulphur* and *Vitriol,* and the Aſtringent Tincture of Mars. *If ſuperfluous Fleſh ſpring* up, you muſt ſtrew on *Burnt Alome, Crocus Metallorum,* or rub the part with *Ægyptiacum.* But the beſt way is to touch it with the *Lapis infernalis.*

† WOUNDS OF THE NERVES AND NERVOUS PARTS. Theſe parts are eaſily altered and corrupted, and contract a Gangrene by means of the external Air, and the Flux of that *Synovia,* [or *thin Gleet*] which obſtructs their

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* *Add to theſe inuſion of the Part with the actual Cautery, applying of Cupping-glaſſes and dipping in the Salt-water, which laſt practice now commonly uſed after the Bites of Mad Animals is recommended by* Celſus.

† *The Lapis infernalis is not the Lixivial Cauſtick commonly ſo called in* England, *but the Lunar Cauſtick, deſcribed by* Lemery *with that Title.*

Unition.

Unition. In Hurts of the Nervous parts, it is neceſſary to rub the Limb from the firſt Riſe of the Nerves with *Oyl of Earth-worms, heightned with Diſtilled Oyl of Lavender. Diſtilled Oyl of Lavender* taken inwardly, removes Convulſions, and ſo do's *Oyl of Sage, Amber.* All Unctuous and Mucilaginous things, all Greaſes and expreſt Oyls are hurtful in Nervous wounds, which require penetrating Medicines, ſuch as *Balſam of* Peru, *Diſtilled Oyl of Turpentine, Oyl of Wax, Diſtill'd Oyl of Lavender, Oyl of the Philoſophers, Diſtill'd Oyl or Balſam of St.* Johns *wort, Spirit of Wine and Gum Elemi.* The following Compoſition is excellent, ℞ *Dialtheæ* ℥iv. *Diſtilled Oyl of Bays,* ℥iß. *Mix and apply this.* The Following Oyl is admirable to apply to the Fiſt, ℞ *the Tops of St.* Johns *wort in flower,* two Handfulls; *Common Oyl,* l. vi. *Digeſt theſe together, adding Turpentine* ℔ß. *Powder of Earth-worms,* ℥iij. *a little Saffron, Mix theſe and apply them to wounds of the Nerves.* Tents muſt not be put into Nervous parts if it can be avoided, becauſe they aggravate the Pain. To abate the *Synovia* or Gleet from the Joynts, ℞ *Oyſter ſhells calcined,* ℥i. *Powder of Skulls burnt, dryed Bones, Jaws of a Pike calcined,* ā ℥ij. *Burnt Ivory, Terra Sigillata,* ā ℥iß. *ſtrew the Powder on the Part. Hogs-dung incorporated with the Blood of the Wound, Boyled and applyed in Form of a Cataplaſm,* is a Specifick to ſtop the *Synovia, Diſtill'd Water of Pounded Crabs* applyed with Raggs, does not only ſtop the *Synovia*, but takes off all other Inflammations, Eryſipelas, and Pain in wounded Parts. If Convulſions proceed from a partial diviſion of the Tendons, cut them quite aſunder, and ſtitch them as directed in the Operation of the Suture of the Tendon.

WOUNDS OF THE BREAST, if they hurt the Lungs, require internal Medicines to prevent and cure a Pleuriſie or Peripneumony, which ordinarily happen in theſe wounds. You muſt put in Tents Capped, or with a Head, to give a free exit to the Blood and *Sanies*, which otherwiſe would create an *Empyema.* Internally you muſt give Diureticks and Vulnerary potions; We may obſerve *Pus, Sanies*, and Blood ſometimes voided by Urine in theſe wounds.

WOUNDS OF THE HEAD, require the Body to be kept open, if they are ſuperficial it ſuffices to uſe *Oyl of St. Johns wort, Balſam of* Peru, *Emplaſter of Betony.* Or this following, ℞ *Emplaſter of Betony, Tacamahac* ā *incorporate theſe with Balſam of* Peru. If the wound hurt the *Cranium,*

Cranium, and do not paſs through it, ſtrew on it powder of *Orrice Root*, *Aloes* and *Myrrh*, *impregnated with Spirit of Wine*, or *diſtilled Oyl of Turpentine*, and lay dry Lint on it. Nothing which is oyly or greaſy, is to be uſed in Fractures of the *Cranium*. If wounds pierce the Cranium, ſtop inſtantly the Flux of Blood with *Powder of Frankinſence* and *Woites of Eggs, with a little Bole Armoniack*. Put into the *Cranium* Pledgits dipt in a little *Oyl of Turpentine, with Balſam of Peru*: You muſt never ſuffer Oyly or Greaſy Medicines to touch the Brain; If the Brain or its Membranes begin to corrupt, uſe *Honey* with ſome few drops *of Oyl of Turpentine*, but never *Honey* alone. In contus'd wounds which are Superficial, uſe to the part affected *Oyl of St.* Johns *wort, with a ſmall proportion of Chymical Oyl of Aniſeſeeds*; But if they are Deep, there will be a great ſwelling, and you muſt attempt to diſſipate it by inſenſible Tranſpiration, or open it without farther delay, leaſt the *Pus* corrode the *Perioſteum* and the Bone by its Acrimony, and then heal the wound with Digeſtives and Suppuratives, of which kind is this Compoſition. ℞. *Turpentine diſtilled, Gumm Elemi*, ā ℥iß. *Beavers Greaſe*, and *Stale Hogs lard*, ℥i. *Mix theſe and apply them.*

REMARKS.

It is Uſeleſs as well as Dangerous, to make Sutures on Parts tumefied, as ſome Practitioners have done after the Amputation of Limbs, paſſing the Thread croſſways to draw together the Fleſh; this Practice is to be condemned, becauſe the parts after the Operation tumefying with abundance of Pain burſt the Threads which kept them in, and hinder the Application of Pledgits.

CHAP.

CHAP. III.

Of the Suture of the Tendon.

THIS Operation *is a Stitching of the Tendon to reunite its parts.*

THE CAUSE of the Suture of a Tendon, is its diviſion.

THE SIGNS are evident from the apparent Separation, and loſs of Motion in the part.

The OPERATION.

When a Tendon is cut aſunder, it ſuffers no Tenſion, Inflation or Fluxion, the contracted parts only retiring and encreaſing ſomething in Bulk. But if the Tendon be divided in Part only, you muſt inſtantly cut it aſunder, without which there will infallibly follow Vehement and Sharp Pain, Convulſion, *Syncope's*, Vomiting, Fluxes, Feavers, *Coma's*, and frequently a Gangrene. The Fibres remaining entire, wanting the Aſſiſtance of thoſe which are cut, are burſt and torn by the contraction of the Muſcle, or ſuffer violent Tenſion, and the Blood ſpilt in the Wound beginning to ferment, its Saline parts, prick and moleſt them, which determines the Spirits towards the Muſcles in a great Hurry and Confuſion, and cauſes the Convulſion. The Spirits flying to various parts of the Body in this diſorderly manner, the Heart is deprived of their influx, diſabled in its motion, and hence *Syncope's* neceſſarily inſue. The Spirits beginning to regain their Natural Courſe, redouble their Strength, and Dart themſelves with great Swiftneſs into the Fibres of the Stomach, by the great communication between the Nerves of the Heart and this part; and this creates violent *Heavings* and *Vomitings*. The Stomach by its contraction very much compreſſes the Gall-Bladder, and the Biliary and Pancreatick Duct, forcing them to diſcharge their contents into the Guts, and from hence *Fluxes* ariſe. Theſe Liquors wanting due preparation, corrupt and communicate an ill Ferment to the Chyle, with which they are mixt in the Inteſtines, and from hence *Feavers* proceed. The Fermenting Blood riſes to the Brain with great impetuoſity, and the Veſſels by the ſlow Circulation through the *Sinus's*,

not being ſufficient to diſcharge it into the Jugulars, with the ſame Expedition it is brought thither, and compreſſes the Nerves ariſing from the Baſis of the Brain, which are diſpenſed to the Organs of Senſe, and this cauſes the *Coma*.

If the Tendons are ſo far contracted within the Fleſh, that you cannot draw them out with your *Forceps*, mollifie them with *Oyl of Wax*, or *Oyl of ſweet Almonds drawn without Fire*; becauſe theſe being Viſcous, are for that reaſon proper to Sheath the Acidity of the Blood, and abate the Pain. If the opportunity of rejoyning the Tendon while the Wound is recent be neglected, you muſt open the Cicatrix as little as may be, becauſe the Fleſh preſerves it from the Alteration which might otherwiſe happen.

In making the Operation, cut as little as may be, the extremity of the Tendons, if they happen to be callous by remaining long divided. The part muſt be kept a little bended, for the better approaching of the two ends, which muſt be brought about one ſixth part of an Inch one over another. It is not ſufficient for their Unition to have the Edges brought together, becauſe by the Contraction of the Muſcle, they would be ſoon drawn aſunder; but by applying the one extremity a little over the other, they are reunited by the Nutritious Juyce iſſuing from their two Extremities and forming a ſort of *Ganglion*.

The Surgeon muſt take a Streight, Thin, Flat Needle, Threaded with a double Thread well waxed, with a Knot at the end, into which he muſt put a ſmall Compreſs. Then He muſt paſs his Needle from without inwards into the Tendons, laid over each other, and after from within outwards, then make a ſimple knot on the ſmall Compreſs, and after that a ſlip-knot.

The DRESSING. When the Operation is finiſhed, you muſt keep the part bended by the Help of Paſt-board and Bandage, for fear leaſt the ends of the Tendons ſhould be drawn aſunder, which would make their Reunion after impoſſible. You muſt lay on the Wound a ſmall pledgit dipt in ſome Spirituous Liquor, and a ſmall Compreſs over it, and keep all on by Rolling the Part.

The CURE. When the Wound is Cicatrized, chafe it with Spirituous and Balſamick Medicines, to make the Tendon ſupple, and by degrees extend it ſelf, leſt the Part remain ſtiff and contracted. The Suture muſt be humected with *Oyl well mixed with Spirit of Wine*.. The following

following days you muſt uſe a Balſam made with *Turpentine, Tincture of Aloes in Spirit of Wine*, infuſion of the *Flowers of St.* Johns *Wort*. All Oyly and Greaſy Medicines corrupt the Tendons, and muſt be forborn. Cataplaſms made of *Wine*, with *the four meals, the Yelk of an Egg* and *Honey*, are very good in the beginning of the Diſtemper. During the whole Cure, you ought to chafe well the Limb with ſome good Liniments, to the Origin of the Nerves; for example, the Neck, if it be the Arm; and the Spine of the Back, if it be the Thigh and Leg, with *Oyl of Earthworms*, heightned with the *Chymical Oyl of Lavender*. The following Unguent is good. ℞ *Oyl of Earthworms, Foxes, Mans Fat* ā ℥iß. *Juice of Earthworms*, ℥ß. Mix all well, and rub the Part with them, *Balſam of* Peru, *Diſtilled Oyl of Turpentine, Oyl of Wax, Diſtilled Oyl of Lavender, Oyl of the Philoſophers, Diſtilled Oyl of Bays, Balſam* of *St.* Johns *wort, Spirit of Wine, Gum Elemi* are good Medicines to apply to the Tendons, and all other Nervous parts. The Compoſition of *Felix Wortz* is excellent, which is thus made; ℞ *Of the. Unguent. Dialthææ.* ℥iiij. *Chymical Oyl of Bays*, ℥iß. Mix and apply them. This *Oyl of St.* Johns *Wort* is admirable. ℞. *Of the Tops of St.* Johns *Wort in Flower*, one Handfull. *Common Oyl*, ℥vi. *Digeſt theſe together, adding Turpentine*, ℔i. *Oyl of Earthworms*, ℥iij. *with a ſmall quantity of Saffron*; mix the Ingredients. The *Exuviæ of Snakes powder'd, and Crabs-Eyes mixed*, is admirable to unite Nervous parts divided. Or ℞. *Diſtill'd Oyl of Turpentine* ℥i. *Camphor* ℥ß. *Spirit of Wine* ℥i. *mix and apply them*; This is *Parry's* Medicine. Laſt of all Frictions with Balſamick and Spirituous Medicines ſupple the part, diſpoſe it to a gradual Extenſion, which otherwiſe would remain ſtiff and bended.

REMARKS.

We muſt not eſteem this Operation imaginary or impracticable. *Veſlingius* in his Epiſtles, *Bartholine* in his Obſervations, and *Etmuller* in his Chirurgery aſſure us, that it was made at *Paris*, on a certain Perſon who had all the Tendons of the Wriſt cut. * This Operation has this ob-

* *This Practice, of which there are ſeveral Hints in Authors, as* Guido de Cauliaco, Felix Wurtzius, Severinus, *and others, was of late years revived and practiſed with Succeſs by* Monſieur Bienaiſe, *and ſome other eminent Surgeons at* Paris.

ſervable conſequence, that upon all change of Weather the Patient finds a pain reſembling the Gout, in the place where the Suture was made.

CHAP. IV.

Of the Hare Lip.

THIS Operation is *The Reuniting a Lip cleft, by the help of the Twiſted Suture.* This Deformity derives its name from the Reſemblance to the Lips of Hares which are cleft after the ſame manner.

THE CAUSE. This Defect is either *Natural*, when the Child comes into the World with it, or is cauſed after from ſome Cut, Fall, or other like *Accident.*

If there happen to be a conſiderable loſs of Subſtance, you muſt not adventure on the Operation. The Cure in this caſe would be worſe than the Diſtemper it ſelf, and the Skin being ſo tenſe and cloſe to the Gum, it would be difficult to Articulate ſeveral Words, or move the Lips without a great deal of Trouble. When this happens in the lower Lip, it proves more obſtinate than in the upper, by reaſon of the conſtant flowing of the Spittle into the Mouth. It is dangerous to undertake this Operation in young Infants, becauſe their continual Crying, the ſoftneſs of the part, and the neceſſity of Sucking, would hinder the Unition; and therefore it muſt be deferred till they arrive at an Age to ſubmit to the trouble upon Rational Motives. But if you reſolve to do it, be ſure to keep the Child from Sleeping for ſome time before, that he may ſleep ſoundly after the Operation is over.

This is not to be done in Old Bodies, whoſe wounds are difficult to be cured, nor in Scorbutic or Pocky People, whoſe Blood is Sharp and Corroſive, which like an *Aqua fortis* eats and hinders all Unition. The Blood of Women who want their Courſes, is little better than a ſerous Maſs, without its due Conſiſtence or Unctuoſity, who therefore are not proper Subjects for this Operation. But it may be ſucceſsfully undertaken in Sound, Healthy Bodies of a compleat Age to undergoe it.

THE SIGNS are evident of themſelves, the Deformity being ſufficiently viſible.

THE

THE OPERATION.

To perform this Methodically, firſt free the Lip from the Gum with a ſharp Knife; that is, cut the ſmall Filament which ties it down; and here you muſt have great care in diſengaging the Lip not to hurt the Gums. It is better in this Caſe to touch ſomething on the ſide of the Lip, becauſe if we ſhould go too far on the other, the Bone of the Jaw would be bared, and ever after remain ſo. When the Lip is ſeparated, ſeize it with your *Forceps*, and with your Sciſſars take off the Calloſity on the ſides, cutting off as little as poſſible. The Aſſiſtant who ſtands behind and holds the Patients Head, muſt preſs his Cheeks forward with both Hands, that the Lips of the Wound may be applyed level to each other, for the leaſt inequality would be very deform and diſagreeable to the Sight; after this paſs a Needle with a waxed Thread thro' the Lips from without inwards, at a very little diſtance from the edges, leſt if you do it too cloſe, the Thread may cut thro' the Lip with the leaſt ſtriving, turn the Thread round the Needle, and after ſeveral Turns, croſs it above and below the needles. Theſe turnings ſtay the Lip, and keep its ſides Level. You may paſs as many Needles, as you ſhall think convenient. If the Lip be great, and the cleft extend quite to the Noſe, you may paſs three, breaking off the points, and putting a Compreſs under each end to prevent their pricking, and cauſing an Inflammation.

THE DRESSING. When the Operation is over, wipe the Lips with a Spunge dipt in Wine a little warm'd, and lay on the Wound a Pledgit dipt in ſome good Balſam, and between the Lips and Gums a Rag dipt in ſome Deſiccative Liquor, to hinder the Lip from growing to the Gums, and over all apply the Roller with four Tails, or the Uniting Bandage. To make the Bandage, take a piece of Linen Cloath about an Inch broad, and an Ell and an half in length, more or leſs according to the largeneſs of the Subject, make a Hole in the Roller in the midſt, an inch and an half long, Roll it with two Heads one at each end. You muſt begin to apply it behind the Patients Head, and bring the ends of the Roller forwards, and paſs one of them thro' the Hole you made, then apply the cleft on the part affected, and next bring back the two ends behind the Head over the other pretty cloſe, and faſten them with Pins at their ends.

If you rather chuſe to make uſe of the Roller with four Tails, this is the manner of making it. Take a Roller about an Inch Broad, and about an Ell long, more or leſs according to the bigneſs of your Subject. Double this, and cut it lengthways with your Sciſſars, ſo that there may remain three fingers breadth plain in the midſt. This Roller is thus cut into four parts, each of which is called a Tail. You muſt begin with applying the middle, broad, undivided part of the Roller on the Wound, and the two upper Heads you muſt paſs behind the Patients Head downward, and faſten them at their ends, next take two lower, and paſs them to the hinder part of the Head aſcending, and having made them croſs with the two upper Tails faſten them with Pins at their ending.

It is a general Rule in the applying theſe divided Rollers to make the upper Tails paſs downwards, and the lower paſs upwards, and ſo croſs with the former.

* The Emplaſter muſt have a Traverſe and a Branch at each extremity of the Traverſe. The Traverſe is to be applyed on the Lip, and each Branch be clapt upwards on the ſide of the Noſe.

THE CURE. The Dreſſings muſt be removed twice or thrice after the Operation; for which purpoſe a Servant muſt ſtand behind the Patient and preſs his Cheeks forward, for fear the Wound ſhould open it ſelf, while the Surgeon is taking them of. If there be three Needles, he muſt untwiſt about half the Thread of that in the midſt, and one or two rounds of the other, and then dreſs it as before: Seven or Eight Days after, the Dreſſing muſt be taken a ſecond time of, and if the Unition be compleated, the Needles muſt be gently drawn out, leaſt if they ſhould remain longer, their Holes might be difficult to fill.

REMARKS.

Guillaume Relates, that having made this Operation on a Child of five Months old, it was attended with ſo many ill Accidents, that he expected it would die, and therefore adviſes never to Attempt it in ſo young an Age.

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* *See this Roller in the Plates,* Fig. 3, *and the Emplaſter* Fig. 20.

CHAP.

CHAP. V.

Of Gaſtroraphia *or Stitching the Belly.*

THIS *is a Suture of the lower Belly, to prevent the Guts and other parts contained in it from falling out.*

THE CAUSE which obliges us to make this Operation, is a Wound received in it.

THE SIGNS. Wounds of the Belly are *Great* or *Small*, if they are great enough to let the inteſtines fall thro' them, you muſt make uſe of the interrupted Suture; but if they are ſmall, you muſt only put in a Tent for diſcharging of the *Pus*. Wounds of the lower Belly are *with Læſion of the Internal Parts*, or *without*. We conclude that the Internal Parts have received Hurt from the *Inſtrument*, with which the Wound was made, which if it had a ſharp Edge or Point in all Appearance the Parts are Hurt. We may Judge of the Hurt by the Acute Pain, Inflammation, Fever, or Evacuated *Matter*, which may be diſtinguiſhed by its Colour, Smell, Conſiſtence from the *Pus*, proceeding from the Wound.

You may make a Judgment of the parts Wounded by the Situation, and the Poſture the Perſon was in at the Time he received it. If the Guts or *Omentum* come forth, we muſt examine whether they are mortifyed, or any ways hurt.

The OPERATION.

If there happen to be a great Wound in the Guts, make the Glovers Suture with a Straight flat Needle, and waxed Thread. A Servant muſt hold the Gut on one ſide, and your ſelf on the other, make the firſt ſtitch at a very ſmall diſtance beyond the Wound, and continue it lengthways holding it between the Fore-finger and Thumb. You muſt not tie the Thread, but let one end hang out of the Wound. If the *Omentum* be fallen out, it is almoſt ever mortified, it being very ſpungy, loaded with Fat, and its Texture lax, abounding with Humours, and an infinity of Veſſels in it, upon which Account the Air eaſily penetrating its Subſtance, Coagulates the Blood, and the part being deprived of its Vital Warmth and Motion, ſoon Mortifies.

The Mortification of the *Omentum* is ſoon diſcovered by its livid Colour, and the corrupted part muſt be cut off before the reſt be replaced in the Belly. To do this paſs a Needle with a waxed Thread into the ſound part croſs the *Omentum*, taking care not to prick the Veſſels. The Ligature muſt be indifferent cloſe, and you muſt take off part of the *Omentum*, cutting it to the quick an inch and half above the Ligature. One end of the Thread muſt be left to hang out of the Wound, the better to bring the *Omentum* to its edges, and Cicatrize it with more eaſe, as well as to draw out the Threads after the Suppuration has rotted them. The Inflation of the Guts proceeds from the Air which inſinuates it ſelf, ſhuts the Pores, obſtructs the Circulation, and by conſequence cauſes an Inflammation. Beſides all this the Gut ſuffering Strangulation, the Motion of the Blood is interrupted, and flowing in by the Arteries, and not returning by the Veins, muſt needs Tumefie the part. You muſt attempt to diſſipate this, by applying *live Animals* cut open to them, or by Fomenting with a *Decoction of Line-ſeed.* The following Medicine is good. ℞. *Flowers of Chamomil, Melilot* ā, one Handfull; *Aniſeed, Sweet Fennel-ſeed, Cummin-ſeed,* ā ℥i. *Cloves and Nutmegs* ā ℥ß. *Boyl all in Milk. To this add Decoction of Spirit of Wine camphorated,* ℥i. *Sugar of Lead,* ʒij. *Oyl of Aniſeeds,* ℈ij. *and Foment with this Decoction hot.*

Before this Suture be made, the Guts muſt be fomented *with Spirit of Wine, with a little* Camphire *diſſolved in it.*

If the Guts are mortified or gangrened, uſe no unguent, but foment them with Spirituous and penetrating Liquors. In this caſe, *Oyl of Flints with a little Spirit of Wine camphorated*, is an approved Medicine. If all theſe *Mediums* happen to be uſeleſs for the Reduction of the Gut, dilate the Wound; which if it be in the upper part, the Dilatation muſt be made downwards, if Tranſverſe and near the *Linea alba*, recede from thence. To make this Dilatation, you muſt bring the Inteſtines dexterouſly on the ſide of the Wound to find its direction, then lay on a Compreſs dipt in Wine a little warmed, and introduce a Director into the Belly, turning it on one ſide and another, to prevent engaging the Gut between it and the *Peritonæum*, and to be ſure that it is not engaged, draw it a little back. The Director muſt be held in your left Hand, and you muſt ſlide in an Inciſion-knife to dilate the Wound, and cut the Teguments equally within

within and without. You muſt ſearch for that part of the Gut which is neareſt to the Orifice of the Wound, which thruſt back into the Cavity of the Belly with your forefinger, not taking it out till with the forefinger of your other Hand, you have by degrees thruſt in the remaining part, and wholly reduced the Gut. There is no neceſſity of ſhaking the Body, as the Ancients did to reſtore the Guts to their place, Nature taking ſufficient care in this Affair.

All parts being reduced, make the interrupted Suture, which is called *Gaſtroraphia*, when it is practiſed on the Belly.

The OPERATION.

For performing this, take two crooked Needles threadded with one Thread, put the forefinger of the left Hand into the Belly, to bring the *Peritonæum*, Muſcles and Skin all together to the edges of the Wound; then hold your Needle together with your Wound, and paſs it from within outwards, carrying the point over your forefinger, to prevent hurting the Gut. Take Scope enough, leaſt the continual Motion of the lower Belly force the Suture. When this is done without drawing your finger out of the Wound, take hold of the other ſide, and paſs the Needle from within outwards, with the ſame precaution as before. If there be ſeveral ſtitches to be made, make them in the ſame manner as the firſt, without taking your finger out of the Belly. The Threads being all paſs'd, a Servant muſt hold together the edges of the Wound, and you muſt tie them, beginning with that in the middle, and obſerving all the Directions we have before given in deſcribing the Interrupted Suture. Some pretend that a Tent ought not to be put into the Wound, which is open enough by the continual Motion of the Belly.

THE DRESSING. When the Suture is made, Apply on it a Pledgit dipt in ſome Balſam or Spirituous Liquor, and Embrocate the Region of the Belly with *Oyl of Roſes, with a little Spirit of Wine*, then lay on an Emplaſter, over all a Compreſs dipt in *Oxycrate*, or ſome other Defenſative, and keep all on with the Napkin, Scapular, or other convenient Bandage.

To make this Bandage, take a great Napkin, fold it three or four times lengthways, and roll it at both ends to apply it more commodiouſly. This muſt be laid over the part affected,

affected, you muſt bring it behind, and then forwards again, and then faſten it with pins. This *Napkin* muſt be ſupported by the *Scapular*, to make which, Take a piece of Linen Gloath 7 or 8 Inches broad, half or three quarters of an Ell in length, make a Hole in the midſt to paſs its Head through, one of its two ends muſt fall before, and the other behind; and both muſt be faſtned to the Napkin with Pins; it is beſt to fix them to the Napkin the firſt Turn. You may cut the *Scapular* ſo that it ſhall have four Tails, and it will ſupport the Napkin better if theſe are faſtned ſo, that each Tail were croſs the other.

THE CURE. If the Guts or *Omentum* are Hurt, the Patient muſt lie on his Belly the firſt Days to give them opportunity, gluing of themſelves to the edges of the Wound, nothing conducing more to their Cure. You muſt place a ſmall, flat, ſoft, Boulſter under his Belly. This Situation is proper, becauſe the *Viſcera* bearing their weight on the *Peritonæum*, this Compreſſion abates their Motion, beſides we may obſerve the Internal parts never cured, except by uniting with Neighbouring parts.

During the Cure, the Patient muſt obſerve an exact Diet to abate the periſtaltick Motion of the Guts. You muſt foment every day the Parts with Mollifying and Reſolvent Medicines, to prevent Tenſion, which mightily obſtructs Reunion, for the Lips making an effort to ſeparate themſelves cauſe great Pain, and often burſt the Stitches. You muſt take care to give frequent Clyſters, becauſe they Relax the Fibres, and dilute the contents of the Guts, as well as cool and allay the Motion of the Blood and Spirits, and prevent Accidents. Bleeding is a great means to prevent Inflammation, and ſo are all general Medicines ſeaſonably uſed.

If the edges of the Wound are Callous, you muſt have recourſe to Digeſtives which relax the Fibres, remove Obſtructions, promote the production of Fleſh, and by conſequence advance the Cure.

A good Digeſtive may be made with *Turpentine and the Yelks of Eggs, adding a little Honey of Myrrh*, and *Gum Elemi*. This Digeſtive is Unctuous and Temperate, equalling in its Vertues the beſt Vulneraries and Balſamicks, corrects the Acid in Wounds, puts a ſtop to their Progreſs, and diſpoſes the vicious Ferment, which is the cauſe of all Corruption, to be expelled. When the callous edges of the Wound are ſoftned by Digeſtives, and you have obtained a laudable

Pus,

Pus, you muſt uſe Mundificants as in ordinary Ulcers, without Malignity.

REMARKS.

If the Gut happen to be quite cut aſunder, the two ends muſt be ſtitched to the edges of the Wound to which they will reunite; and you muſt Cicatrize the edges, keeping them from uniting together, which may be eaſily done by great Tents. This Orifice will ſerve in the Nature of an *Anus*, as we have ſeen in a Soldier who had one of the great Guts cut, which was joyned by a *Cicatrix* to the Wound of the Belly, through which the Fæces paſt, the *Anus* being cloſed up. The moſt obſervable thing in this caſe, was the Excrements which he voided had no diſcernible ſmell. *Fabricius Hildanus* relates, *Centur. 6. Obſ. 72.* That a Surgeon having the Misfortune to cut one of the great Guts in the Operation of the *Bubonocele*, the Gut Cicatrized to the Wound, and the Party voided his Excrements, and ſometimes Worms by this Orifice.

CHAP. VI.

Of the Paracenteſis *or Aperture of the Belly in Dropſies.*

PAracenteſis is *The Punction made in the Bellies of Hydropical Patients, to let out the Waters.*

THE CAUSE *is ſome Dropſie.* Theſe are *General* or *Particular.*

General Dropſies are the *Aſcites*, *Anaſarca*, *Leucophlegmatia.*

The *Aſcites* is *Genuine* or *Spurious.* The *Genuine* ariſes from a quantity of Water which fills the Cavity of the Belly, and diſtends it to an extraordinary Magnitude. In the *Spurious* or *Baſtard Aſcites*, the Waters are contained in the Teguments of the Belly, and not in its cavity, and theſe only are affected. Tho' the Waters float on the Muſcles, yet in opening the Bodies of Hydropical Perſons, we find the Fibres of the Muſcles whitiſh, as well as the Neighbouring parts, by their long ſoaking in the Water; but in all other reſpects, as

ſound,

ſound, ſolid and firm, as if there had been no ſuch Inundation; and becauſe the Waters which form this *Anaſarca* are ſweet, inſipid, and void of all Acrimony, and by conſequence incapable of infecting the Parts in which they are lodged, the Patient has no Feaver or Thirſt. and the Urine is ſweet and crude. But in the *Genuine* Aſcites the Urine is Red, Lixivious, with a violent Thirſt, and a conſtant Hectick Feaver, and very ſmall in quantity.

There are two principal Cauſes which concur in the forming a Dropſie, the Diſſolution of the Blood, and the ſlowneſs of its Circulation. The Blood becomes ſerous and incapable of preſerving the Union of its parts, when the Balſamick parts are diſſipated by violent Exerciſes, long Meditation, Exceſſive Grief by the Abundance or Exaltation of its Salts, and by this Colliquation, it finds ways to get out of its Veſſels, and produce Dropſies. When the Circulation of the Blood is ſlow, from whatever cauſe it proceeds the Seroſities begin to ſeparate, as in Milk from the Caſeous part, or in the ſame manner as in the Porringer after bleeding; becauſe the Motion which it had in the Veſſels ceaſing, the parts fall together and preſs out the *Serum*, not unlike Water expreſt out of a Spunge by clinching the Hand. And theſe Seroſities not being longer detain'd by the Oleous part of the Blood, find a way to tranſpire thro' the intervals of the Fibres. This Opinion is confirmed by the experiment of making a Ligature on the Veins, which obſtructing the Reflux of the Blood, the part becomes Hydropick.

We ſee Women for the moſt part have their Legs Tumefied, during the time of their going with Child, becauſe the *Fœtus* compreſſing the Veſſels which return the Blood to the Heart, the Circulation is very much impeded. Add to this, that all People dwelling in Marſhy places, and thoſe who are of a cold Conſtitution, are oftner attacked with theſe Diſtempers, becauſe the Motion of their Blood is ſlower.

When the Waters are included in a *Cyſtis*, the Dropſie is for the moſt part incurable. This *Cyſtis* is a Caſe which by degrees is ſeparated from ſome Neighbouring Membrane, by the diſcharge of abundance of muddy, ſaline Water, which corrodes thoſe Filaments by which it was connected to them. It abounds with an infinity of Glands and Veſſels, which it receives from the Neighbouring parts, all which afford matter for Dropſies.

The

The *Anaſarca* or *Leucophlegmatia* is a ſoft watry Tumour, which extends over the whole Body, eſpecially the Muſcles, and yields to the impreſſion of the Finger.

Particular Dropſies only occupy ſome one part, and receive different Names from the Parts affected, as *Hydrocephale* in the Head, *Hydrocele* in the Scrotum, and *Hydromphalus* in the Navil, *&c.*

THE SIGNS of a Dropſie are ſwelling of the Belly, Tranſparence and Fluctation of the Waters, difficulty of Breathing, a Feaver, a low, quick Pulſe, a Heavineſs of Body, Inſatiable Thirſt, and Difficulty of making Water.

The Feaver ariſes from the impure Chyle and Saline Water, which mixing with the Blood paſs to the Heart, and fermenting there create a diſorder in its Motion. The Heart by its Communication diſorders the Pulſe of the Arteries, kindles a Feaver which is not very perceptible, by reaſon of a Deficiency of the Spirits, unable to give the Blood any great Degree of Motion, and hence comes the *lowneſs of the Pulſe.* The *Pale Complexion* and *the Heavineſs of the Body*, proceeds from the ſlow Motion of the Blood, the Maſs of Water with which it is loaded, and the Diſſipation of the Spirits which are in a manner drowned in ſuch a quantity. The *Difficulty of Breathing* ariſes from the great Tenſion of the lower Belly, which preſſes the Diaphragm towards the Lungs, ſo that wanting liberty to extend it ſelf, Reſpiration becomes frequent and forced. The *Exceſſive Thirſt* proceeds from the Salt Waters, which are the Cauſes of this Diſtemper. The Patient has a *difficulty of Urine*, becauſe the Urine which in a Natural State paſſes through the Kidneys, diſcharges it ſelf into the capacity of the Belly. Beſides that the Salts of theſe Waters moleſting the Urinary Ducts and *Sphincter* of the Bladder, force them to a more than ordinary contraction.

The OPERATION.

Before the Operation, you muſt have Recourſe to *Diureticks*, *Sudorificks* and *Aperitives.*

The ſtrongeſt Diureticks are Roots of *Dwarf-Elders*, Iris, Gratiola, *Wild Cowcumbers*, *Leaves of* Soldanella *infuſed in Spirit of Wine Tartariſed*, *the Pith of Elder*, *Saffron*, *Chryſtal Mineral*, *Roots of Butchers Broom*, *Polypody*, and *Garden Flaggs* which infuſed in White-wine, have a very good effect. * *The following Sudorificks* are good, *Diaphoretick Antimony* taken from 6 *gr.* to 30. in any proper Vehicle,

as

as *Carduus Water*, *Sal Armoniac* and *Tartar* given ſeparately, and one after another, from 4 to 10 *gr.* each. *Volatil Spirit of Sal Armoniack*, from 6 to 20 *gr.* *Carduus* and *Balm-water*, from ℥ij. to vi. *Volatil Salts of Tartar*, *Vipers Urine*, *Harts-Horn* and *Ivory*, from 6 to 16 *gr.* Powder of Vipers to Thirty, covering well the Patient after the taking theſe Medicines. Proper *Aperitives* are *Salt-Peter* refined, from 10 *gr.* to ℥i. *Sal Armoniack*, from 6 to 24 *gr.* *Jalap*, from 10 *gr.* to ℥i. *Roſin of Jalap*, from 4 *gr.* to 12. *Roſin of Scammony*, from 4 to 10 *gr.* *Chryſtals of Tartar*, from ℥i. to 3. *Tartar Soluble*, from 15 *gr.* to ℥i. *Spirit of Turpentine and Spirit of Creſſes*, from 15 drops to ℥i. *Extract of Aloes*, from ℈i. to ℥i. Beſides infinite more, of which Authors are full, not to be made uſe of without good Advice.

If theſe Remedies are ineffectual, you muſt proceed to Operation, which muſt be performed in the following manner. The Patient muſt be kept ſitting on his Bed or on a Pillow, to give the Waters leave to fall down. And a Servant muſt hold his Belly with both his Hands, to harden and ſtay the place in which you deſign to make the Operation. * You muſt pierce the Belly with the Tap or Pipe with a Needle in it, three or four fingers breadth below the Navel, and about the ſame diſtance on the ſide, to avoid hurting the *Linea Alba*. You muſt ſtretch the Skin a little, that it may fill up the Orifice, when you have drawn your Inſtrument out. You muſt make the punction at one thruſt, ſo that your Needle and the *Cannula* which contains it, may enter the Belly. Then draw the Needle out of the *Cannula*, to give way for the exit of a ſufficient quantity of Water, which muſt be proportionable to the Patients ſtrength. This Inſtrument is preferable to the Lancet; becauſe when you have drawn it out, the Orifice is ſo ſmall the Waters cannot get out after, and the Aperture made by a Lancet is ſo great, it is very difficult to ſtop them. If the Waters are thick and muddy, and cannot paſs through ſo ſmall a puncture, you muſt make the aperture with a Lancet, and leave a *Cannula* in it; till you have drawn out all the Waters, which you muſt do at ſeveral Times, leaſt

* *This Inſtrument was firſt Deſcribed by* Barbette *in his Chirurgery, which he ſays was then lately brought out of* Italy *by Mr.* James Block *a Surgeon at* Amſterdam. *This he publiſhed in his Book, but with this difference, that he makes his of Steel edged at the point like a Lancet, whereas the other was made of Silver with a round Point.*

you

you weaken the Patient too much, and throw him into a *Syncope*. When you make a ſecond puncture with this Inſtrument, it muſt be below the former. If the Waters make a great ſwelling about the Navil, make your puncture in this manner deſcribed. But if they fall into the Legs and Thighs, make Scarifications, about the depth of a Bleeding, four fingers Breadth below the internal Ancles, whence you will have a great deal of Blood and Water; and after lay a little Lint on, and keep it on with a Bandage. When you would have the Waters come out, you muſt undoe the Bandage and cauſe the Patient to walk, ſome Body holding him up. If theſe are not ſufficient, you may Scarifie the *Scrotum*, Prepuce, and Thighs, all which Rivulets joyning will make a conſiderable Evacuation.

THE DRESSING. Lay on Pledgits and a Compreſs on the Scarification, with a Bandage four fingers Broad, and of a length proportioned to the Part. This muſt be rolled at one end only, and apply'd on the Compreſs to keep that on the Scarifications, over which you muſt make ſeveral Turns or Rounds: After this, aſcending and deſcending again ſpirally, ſtill leaving one third part of the Roller below bare, and in the laſt place fix it with Pins at its ends. If the Operation be made with the Lancet, put a Tent into the *Cannula* which remains in the Belly, and a great Compreſs made of Rags three or four Times double, or more if you think fit, and ſuſtain all with the *Napkin* and *Scapular*; the manner of making and applying which, we have ſhewn in the *Gaſtroraphia*.

If you have made the Operation with the Tap, there is no need of Dreſſing. The Perforation is ſo ſmall, the Waters cannot make their way through. But if for more ſecurity you have a mind to make one, you need only apply a ſimple Compreſs on the Puncture, with a Bandage to keep it on.

THE CURE. The Patient muſt uſe a drying Dyet, ſuch as Roaſted Meats. If you fear a Relapſe, purge from time to time with Hydragogues, ſuch as *Jalap* in Powder, from 10 *gr.* to 30, *Roſin of Jalap*, from 6 to 12, *Scammony*, from 8 to 15, and Ptiſans made with the Diureticks, ſuch as Roots of *Dwarf-Elder*, Iris, Gratiola, *Wild Cowcumbers*, *Leaves of Chervil*, *Roots of Butchers Broom*, with a Thouſand of the like nature to be found in Authors.

RE-

REMARKS.

Bartholine Cent. 3. *Hiſt.* 23. relates that a young Fellow of 20 Years of Age, happened to have a *Hydrops Aſcites*. The Swelling was ſo extraordinary large and ſhining, the Water forced its way through the Pores of the Skin to that degree, that all the Clothes and Linen round was wetted with it, the Tumour abated, and after returned, which Relapſe ſo weakned the Patient that it killed him. In *Cent.* 3. *Hiſt.* 81. he tells us a Child not a year old dying Hydropick, had the Skin ſpotted with a purpliſh brown colour, about the Stomach, Navel and Groin. Fifteen pints of Water were drawn out of its Belly, which was very Serous, Bilious and Stinking. The *Omentum* was all putrefied, the Stomach and Guts inflated. It did not appear there ever had been any *Pancreas*. The Meſaraick Veins were filled with a ſhining glutinous matter. The Spleen was Monſtrous, had three Appendages, adhered to the left Kidney, and the Kidneys were very large, the Liver had loſt its Red, and was become Aſh-coloured diſcharging abundance of Seroſities upon cutting it; The Cavities of the Liver and Spleen were filled with Water. The Bile in the Gall-Bladder lookt bright like Gold, the *Pericardium* was of the ſame Colour, and very much diſtended by a quantity of ſtinking Water contained in it. Not one drop of Blood was to be found in the Heart, or any of the other *Viſcera*, no Blood in the *Vena Cava*, nor the great Artery, but a Water like the waſhing of Fleſh. The Lungs were flaggy and putrid. *Blaſius* relates, that having opened a young Girl of two years of Age, who dyed of a *Hydrops Aſcites*, he drew out Twenty nine pound of Water, all contained between the Muſcles and *Peritonæum*, the *Viſcera* being intire.

We muſt not imagine that all ſwellings of the Belly ariſe from Dropſies, ſince the laſt nam'd Author aſſures us, He had opened a Woman whoſe Belly was as hard as a Stone; and when ſhe was dead, was dry all over. The Skin, Muſcles and *Peritonæum*, made only one deformed Lump, not to be diſtinguiſhed from the Muſcles. The parts all together, were more than half an Ell in thickneſs, from the Navel to the Bottom of the Belly. The External parts were all Cartilaginous, and the Internal all full of Cancrous Ulcers.

CHAP.

CHAP. VII.

Of the Operation of the Hydrocele.

THIS Operation is *an opening the* Scrotum, *to let the Water out of it.*

THE CAUSE. Is a præternatural quantity of Water contained in it. The Reaſon of its collection there, is the ſame we have aſſigned as the Cauſe of a *Hydrops Aſcites*, whither we ſhall remit the Reader. The *Hydrocele* ſometimes follows upon an *Aſcites*, in which caſe we muſt not think it always proceeds from the Water running through the Productions of the *Peritonæum*; for then it would ever be lodged within the *Tunica Vaginalis*, whereas it frequently finds a Paſſage between the *Peritonæum* and the Muſcles, and ſo gets into the *Scrotum*. Sometimes the Water is contained between the proper Membranes of the Teſticle, or included in a *Cyſtis*, ſometimes part is in the *Scrotum*, or a Membrane adhering to it, which makes a Double *Hydrocele*.

If the *Hydrocele* be the effect of a *Hydrops Aſcites*, the Operation will be uſeleſs; becauſe the conſtant Defluxion of Waters will ſtill produce it a new.

Hydrocele's not enſuing on Dropſies, ordinarily proceed from the ſlow Motion of the Blood or its Diſſolution, as we have above proved. Falls and Contuſions may ſometimes cauſethem, becauſe the Blood ſtaguating in the part, gives the Seroſities time to ſeparate. We may aſſign the various Circumvolutions of the Spermatick Veins, as another Cauſe, which numerous windings, hinder the prompt circulation of the Blood, and give the Redundant Serum liberty to ſink into, and diſtend the *Scrotum*.

THE SIGNS of an *Hydrocele* are the Swelling of the Cods, and the Tranſparence of the Tumour. *Hydrocele's* are often miſtaken for true *Hernia's*; but we ſhall aſſign a ſufficient number of Marks to diſtinguiſh the one from the other, in the Operation of the *Hernia*.

The OPERATION.

This is performed with the Tap, Lancet, Seton, or Potential Cautery.

For making it with the Tap, let the Patient be ſtanding or ſitting, and let a Servant compreſs the *Scrotum*, keeping back the Teſticle, to prevent its being hurt with the point of the Inſtrument. When the Water is let out, draw out the *Cannula*, and the skin of the Teſticles which contracts, will exactly cloſe the Aperture.

When the *Hydrocele* is only on one ſide of the *Scrotum*, it is moſt commonly within the Tunicks of the Teſticle; and is very painful, by reaſon of the great Tenſion of the Membranes. To make the Operation in this Species of *Hydrocele*, make the Aperture with the Lancet, and let it be deep and large enough to let the Water out, and apply proper Remedies to diſcuſs the Membranes ſwoln by the Humours ſoaking into them.

The Aperture muſt be on the ſide of the Cods, and inſtead of the Lancet, may be made with the Potential Cautery; which on this occaſion is preferrable; becauſe there is leſs danger of hurting the Teſticle in this way, and it inſenſibly waſts the Membranes, which in time will be wholly conſumed by the Suppuration. Lay a Cauſtick on the place you deſign for your Orifice, and afterwards open the Eſcar with a Lancet. The Waters being apt to blunt the point of the Cauſtick, if the firſt do not make an Eſcar ſufficient, apply more. When the Slough is ſeparated, fill the wound with Doſſils, and leave thoſe which cover its Bottom, four or five days without taking them out. The end of letting them lie in ſo long, is that the matter may grow ſharp, and ſooner waſt the Tunicks which contain the Waters. Your firſt Care muſt be to procure a good Digeſtion, and next to look well to the Healing of the Wound. In very young Children, the Aperture is beſt made with the Lancet to diſcharge the Water all at once.

To make the Operation with the *Seton*, paſs a Skain of Thread through * a Packers Needle, and paſs this through the *Scrotum*, drawing the Thread now and then to diſcharge the Water. This way can only be practiſed in the *Scrotum*; for if you ſhould Attempt it in the *Tunica Vaginalis*, the rubbing of the Thread againſt the Teſticle, would cauſe a violent Inflammation. I think the Lancet or the Tap preferable to this.

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* *Needles are made for the purpoſe much after this Form, and to be had at every Inſtrument-Makers.*

In

In all Caſes where the Cods require Suſpenſion, you muſt make uſe of a Bag Truſs. This is nothing elſe but a Bag with four Tails or Straps, the upper of which go round the Patients Body, the lower between his Legs, and are faſtned behind to the Waſtband. This Bag muſt have an Aperture before for the Yard to paſs through.

You may make a Suſpenſory Bandage which ſhall be more commodious, and keep the Cods up better after this manner. Take a piece of Linnen Cloath three Inches broad, and about four or five Inches long, divide it below to the middle, then ſow above on each ſide two little ſtrings, near an Inch broad, and long enough to go round the Patients Body, and two more below to paſs between the Thighs, and be tyed behind to thoſe which go round the Waſt; Theſe muſt croſs each other in paſſing between the Leggs.

THE CURE. Apertion being no more than a palliative Cure, you muſt have Recourſe to a good Drying Diet, ſuch as are all Roaſted Meats. Give Diuretick Ptiſans made with the *Roots* of *Dwarf-Elder*, Iris Gratiola, *Wild Cowcumber*, *Leaves of Soldanella and Chervil*, *Roots of Butchers Broom*, *Polypody*, *Garden-Flags*, *Chriſtal Mineral*, *Saffron*, *&c.* Theſe Ingredients infuſed in White Wine make an excellent Medicine, as we have noted in the Chap. of the Dropſie. Purgatives which colliquate the Blood, have a good effect, as *Jalap*, ℥ß. *in any Decoction*, *Reſin of Jalap* gr. 12. *in Conſerve of Roſes*, *or in a Decoction or Reſin of Scammony*, *from* 10 *to* 18 gr. *after the ſame manner*. Sudorificks are uſeful, as *Powder of Vipers* 15 *gr.* with as much *Diaphoretick Antimony* in *Carduus Water*, ℥iij or iv. or *Volatil Spirit of Sal Armoniack*, *from* 6 to 20 *drops*. *Volatil Salt of Tartar and Vipers*, *from* 6 to 16 gr. with an Infinity more to be found in the beſt Modern Authors, ſuch as *L' Emery*, *Charas*, *Etmuller*, &c. Laſtly, Aperitives are very ſerviceable, ſuch as *Spirit of Salt*, *from* 4 to 10 *Drops*, *Salt Peter refined*, *from* 10 gr. *to* ℥i. *Sal Armoniack*, *from* 6 *to* 24 gr. *the Mercurial Panacæa*, *from* 6 gr. *to* 20, &c.

REMARKS.

Fabricius Heldanus, *Centur.* 1. *Obſ.* 48. Relates a Hiſtory of a Man of 40 years of Age, attackt with a *Hydrops Aſcites*, which diſcharged it ſelf ſo largely on the *Scrotum*, that it mortified, and the Slough coming away let the Teſticles bare. The great efflux of Waters cured the Perſon of his Dropſie, and Nature reinveſted the Teſticles with a Callous

cover, which ſerved inſtead of the *Scrotum* to them, and the Patient after his Recovery had ſeveral Children. *Bartholin Cent.*2. *Hiſt.*64. relates that a certain Abbot being Hydropick, the Waters fell into the *Scrotum*, which grew exceeding large. The Surgeon made an Aperture greater and deeper than was neceſſary; which cauſed a Gangrene of the Part. The Patient found the Waters aſcend towards his Throat, which took away his Speech, and the *Scrotum* mortifying, he ſoon after dyed.

CHAP. VIII.

Of Hernia's.

HErnias are *Præternatural Tumours cauſed by the falling down of ſome* Viſcera *of the lower Belly, or a Flux of Humours.*

Hernias differ according to the parts affected. If this ſwelling is in the Navel, it is called *Exomphalos*, if in the Groin *Bubonocele*; if in the *Scrotum* it is a perfect *Hernia*; if it happen in other parts of the Belly, it is called *Hernia Ventralis*; if caus'd by the falling of a part of the Guts *Enterocele*; if by the Omentum *Epiplocele*, if by the Gut and *Omentum* both *Entæroepiplocele*.

Hernias are again divided into *Genuine* and *Spurious*. They are Genuine or true, when the ſwelling is made by a Part; and *Spurious* or *Baſtard*, when they proceed from Waters, Wind, *&c.* The firſt are called *Hydrocele*, the latter *Pneumatocele*, which ſhall all be explained hereafter. Some again are Compleat, when the parts fall into the *Scrotum* in Men, and the Lips of the *Pudendum* in Women; others Incompleat, when they do not fall lower than the Groin.

The Cauſes are *External* or *Internal*.

The External Cauſes are Violent Blows, Rude Shaking, Long Races, Dancing, Leaping, continual Bawling, Frequent Debauches with Women, and generally all violent Exerciſes. The Internal Cauſes are firſt the copious Defluxion of Seroſities ſeparated from the Glands of the Guts, Groin and *Peritonæum*, which plentifully watering theſe parts, diſpoſe them to yield to all Impulſions. The ſecond cauſe is the great quantity of Fat and Oleous parts in the *Omentum* and Meſentery

tery, which ſmear and greaſe the Fibres of the *Peritonæum*, and by this means ſoften, relax, and diſpoſe them to dilate and yield to the Motion, and puſhing forwards of thoſe parts which form *Hernias*. For this reaſon all Perſons who eat much Oyl in their Diet, are more ſubject to inconveniences of this kind than others. Windy Dyet contributes very much to the Riſe of *Hernias*; for the included Air by its Rarefaction diſtends the Guts, which puſh forward on the *Peritonæum*, and enter its Productions.

Hydropical Bodies, and Bigg-bellyed Women are ſubject to *Hernias*; becauſe the Diſtention of the Womb in one, bears up the Guts againſt the Diaphragm, and forms an *Exomphalos*, and the Water in the other ſoaks and relaxes the *Peritonæum*, and makes it incapable after that is exhauſted of reſiſting the Guts; which force its inner Membaane thro' the Rings of the Muſcles, and form a Bag which is more or leſs elongated, as the impulſe is more ſtrong or feeble. Whence it appears this Bag is not formed by the Productions which cover the Spermatick Veſſels. The *Hernia Ventralis* happens in the *Aponeuroſis*, [or Tendinous interſtices] of the ſtreight Muſcles, the Belly riſing in ſuch a manner, that it cannot avoid dilating thoſe weak parts, and ſometimes burſting them.

This *Species* of *Hernias*, do's not happen ſo often as the *Bubonocele*; becauſe the Parts and Humours by their own weight, have a natural tendence towards the Groin, and the Rings of the Muſcles being open, the Parts eaſily ſlip in where they find little Reſiſtance.

THE SIGNS. In the firſt Species of *Hydrocele*, the Water lodged between the Membranes of the *Scrotum* make a ſlight Tenſion a conſiderable Tumour, and a moderate Weight. You may perceive an Undulation by ſtriking on the Swelling with your Hand, and the Tranſparence of the Water by ſetting a light behind it, the skin becomes tender, ſoft and ſhining, without pain. In the ſecond kind the Waters are within the Membrane of the Teſticles, there is great Pain and Tenſion, the Weight is greater than in the Firſt, the Skin is not ſo much Diſtended, but has ſeveral of its folds remaining; it is for the moſt part on one ſide, the Fluctuation is deeper, and the Tranſparence of the Waters more obſcure. Theſe two Species may happen together.

The Signs of a *Sarcocele* are a great Hardneſs, an intolerable Weight, an inſenſible Encreaſe of the Swelling. If

there be no Riſing in the Groin, it is a ſign the Production of the *Peritonæum* are free from Cancrous Ulcers.

You may diſtinguiſh the *Sarcocele* from the *Hernia inteſtinalis*, the former being ſoft, and the latter hard. This Tumour is ſometimes Schirrous, ſometimes Malignant; when it is Schirrous, there is no ſenſe of Heat or Pain; when it is Malignant there is both.

The ſigns of a *Varicocele* are a great Inequality, Weight, Pain, Inflammation, eſpecially if you uſe many Medicines to moleſt it. This makes a Man impotent, when it ſiezes both Teſticles.

The ſigns of *Circocele*, (which is a Dilatation of the external Veſſels in oppoſition to the *Varicocele*, in which the internal only are diſtended) are the ſame with the former, except that the Pain, Weight, Inflammation, are leſs; the Membranes of the *Scrotum* more diſtended, and the Swelling more apparent.

In the *Pneumatocele* the Swelling vaniſhes at ſome times, and upon ſtriking ſounds like a Drum, has no Weight, Pain, or Inflammation, is Tranſparent without changing the Colour of the Skin, and the Wind is ſometime perceived higher, and ſometimes lower.

Recent *Hernias* made by the parts are moſt commonly ſoft, without Inflammation or Change of Colour, and diſappear upon the leaſt thruſting them back, except they proceed from ſome external Cauſe, as Blows, Falls, or ſome indurated Excrements ſtopt in the Gut, or the free paſſage of the Blood and Spirits into the Part be interrupted, which creates an Inflammation, often followed by a Mortification. For this Reaſon the Surgeon muſt be careful not to handle theſe Tumours rudely, leaſt ſuch ill conſequences may enſue. If there be a Deſcent of the Gut without Inflammation, Strangulation or Adhærence, the Swelling is Soft and Uniform, the Colour of the Skin is not changed, and it diſappears when the Patient lies on his Back; and when the Gut is reduced into the Belly, there is a diſcernible Noiſe. If the *Omentum* is the Cauſe of the Tumour, it is ſofter than if it be the Gut, and is not ſo eaſily thruſt in, it is very uneven by reaſon of the Fat, and if it be preſt with the Finger the the Impreſſion remains, the Reſiſtance is the ſame as in a Steatomatous Humour; and there is great danger of Mortification, becauſe the *Omentum* is ſpungy, and loaded with Fat. The Gut is inflamed, and the *Omentum* turns livid upon the leaſt Alteration.

The

The moſt dangerous Accidents which happen in theſe ſorts of Swellings, are the Inflammation which is always attended with Pain, Fever, Strangulation of the Gut, and ſometimes the *Miſerere*, in which all the Excrements of the Body are forced up, and voided through the Mouth. This Symptom proceeds from the Fæces being too long retained in the Gut and hardned there, hindring the free ſupply of Blood and Spirits to the part, which increaſing in Bulk ſuffers a Strangulation; hence follows the inverted Motion of the Inteſtinal Contents, the Lividity and Mortification of the Parts. This Diſcoloration happens when the Swelling has been too much handled and compreſſed, and the ceſſation of Pain diſcovers the parts to be Mortified.

In the *Bubonocele* and perfect *Hernia* the Tumour ſometimes diſappears, and ſometimes is permanent. If it diſappears, it is a ſign there is no adherence, and the Gut ſuffers no Compreſſion. In this Caſe Bandage and proper Remedies are ſufficient for the Cure. If the Tumour be permanent, this proceeds from Inflammation, Adheſion or Excrements hardned in the Gut. Here nothing can be effected without manual Operation.

The Gut cannot contract an Adherence to any thing beſides the Bag, which makes the *Hernia*, except it be corroded by ſome ſharp Humour. This Bagg adheres ſometimes to the Sheath, which inveſts the Spermatick Veſſels, at other times to the *Omentam*, the Rings of the Muſcles, the *Dartos*, or the Membranes of the Teſticle.

It is very dangerous when the Gut adheres to the Teſticle, and if it be of any ſtanding, it is ſcarce poſſible to cure it, without Amputation of the Teſticle.

You may conclude the Gut adheres if the Tumour has not for a long time ſubſided, and the Patient feels great Pain and Weight in the Teſticle.

If there be a Deſcent of the Gut into the *Scrotum*, and it be retained there for a long Time without returning, it is probable that the Bag which contains it, is fixed to the Teſticles by the glutinous Humours diſtilling from the *Peritonæum*, and the Membranes of the Teſticles which being thickned by the Heat of the part, and drying unite them very ſtrictly, and make the Operation neceſſary to diſingage them.

The OPERATION.

The Operations of the *Bubonocele* and the compleat *Hernia*, are in a manner the ſame, and for that Reaſon, I ſhall comprehend them both in one Chapter.

To perform this Operation, oblige the Patient to lie on his Back, with his Hips a little raiſed, then pinch up the Skin which lies over the Swelling. A Servant muſt hold this at one end, and your ſelf at the other. Then with a ſharp Knife in your Right Hand, make the Inciſion on the Tumour following the Fold of the Groyn, when the Skin is cut, the Fat appears, which you muſt tear of with your Nails or an Inſtrument, as well as the *Peritonæum*, for fear of cutting the Guts; and when you have diſcovered the Bag which makes the *Hernia*, tear it with it with your Nails or Inſtrument as before.

Sometimes this Bag is found full of Water, which accident muſt not ſurprize the Operatour, who may be apt to fear, that Water iſſues from the wounded Gut. To remove this Apprehenſion, he muſt conſider well the Signs which diſtinguiſh the Gut from this Bag.

The Colour of the Gut is Browniſh, by reaſon of its numerous Blood-Veſſels, it forms a ſort of Arch, which is perceptible when it lies bare, and the Swelling is abated. The Gut is thicker than the *Peritonæum*, becauſe it is compoſed of four Tunicks; but this laſt ſign is Ambiguous, the Bag formed by the *Peritonæum* ſometimes hapning to be of a conſiderable Thickneſs. A Thick Fœtid Matter ever diſtills from the Gut when it is wounded, but that which comes from the *Peritonæum* is clear and limpid. If you draw the Gut to you it obeys, except it happen to adhere to the Neighbouring parts, but the *Peritonæum* yields little. The Patient feels a dull Pain till the Gut be diſcovered. Theſe are the ſigns which diſtinguiſh the *Peritonæum* from the Gut.

Sometimes the Gut does not adhere to the *Peritonæum*, and here it is you muſt ſhew your Dexterity to avoid engaging the Gut, which you muſt draw a little forth, when it happens to be expoſed, to ſee whether it adheres to the *Peritonæum* and Rings, or not. When you are ſure it is free in every place, manage it gently with your finger, to make it enter more eaſily; this is done to diminiſh its Bulk, and break the Excrements, which cauſe its Tenſion;

after

after this put it into the Belly with the two forefingers, thruſting them alternately into the Ring. But if the Strangulation be very conſiderable, dilate it with an Inciſion Knife on the Furrow of the Director. It is the Ring of the External oblique, which being lower than the others, cauſes the Strangulation, becauſe the Tendinous Fibres of the *Aponeuroſis* of that Muſcle, cannot recede to give place to the Carnous, and are more ſucceptible of Inflammation, for this Reaſon only Scarifie that in this Operation. If you cannot introduce your Probe for the great Strangulation; draw the Gut to you, and put the forefinger of the left Hand above near the Ring, ſlip a ſmall Inciſion-knife on the Nail, and make a Scarification there, to make way for the entry of the Director, juſt to cut the edge of the Ring.

For if you ſhould proceed farther, you run a Risk of cutting a ſmall branch of an Artery, which paſſes through the *Aponeuroſis* of the Muſcle, which you muſt carefully avoid. You muſt cut inwardly without hurting the Teguments, becauſe it is the *Aponeuroſis* of the Muſcle only, which cauſes the Strangulation. When all is over, replace the Parts in the Belly, and to make a firm Cicatrix, Scarifie the Ring which is Callous, if the *Hernia* be of any long ſtanding.

The Operation of the Perfect Hernia.

To perform this, Let the Patient lie on his Back, and make an Inciſion with a Knife through the Skin on the ſide of the Thigh the whole length of the Swelling, raiſing the Skin as before, you holding one end, and a Servant the other, ſeparate the Lips of the wound, and break with your Fingers or Fleam, the Coats which cover the Gut and Teſticle. The Gut being diſcover'd, introduce a Director between the Membranes of the *Scrotum* and it, and widen the Aperture with your Sciſſors, which you muſt ſlide on the Furrow, and when you have laid bare, diſingage it from the Teſticle, to which it adheres. Next let a Servant hold up the Gut, and draw it gently with his Hands toward the *Os pubis*, whilſt you lightly draw the Teſticle with your Hand, to get the liberty of breaking with a Fleam, or the point of your Knife, the Membranous Ties which unite the Teſticle to the Gut.

But here obſerve if the Adheſion be very ſtrict, it is more adviſable to hurt the Teſticle than the Gut, becauſe that is not neceſſary to Life, whereas if the Inteſtine be cut, the Patient can hardly eſcape. You muſt have a great care likewiſe to avoid cutting the Spermatick Veſſels, becauſe the Flux of Blood will obſtruct the Operation.

After you have ſeparated the Gut from the Teſticle, introduce the Director between the Skin and the Gut, and cut the Ring of the Muſcle, which you muſt ſcarifie to deliver the Gut from its Strangulation, in caſe it ſhould happen. In the laſt place reduce the Gut into the Belly in the ſame manner as in the *Bubonocele*, and when it is replaced, command a Servant to preſs the Belly with his Hand, to prevent its falling out again.

It is a ridiculous Aſſertion, that the Teſticle muſt always be extirpated after the Operation; for this do's not conduce to the Cure of the *Hernia*; on the contrary it prolongs it, puts the Patient to unneceſſary Trouble, and deprives him of the means of ſatisfying the Duties of his Sex; nay, if the Teſticle happen to be affected, it is moſt adviſable to defer the Operation till the Fluxion be abated, in which ſpace perhaps that may be cured.

Sometimes the *Omentum* alone adheres and covers part of the Teſticle, and ſometimes the Gut with the *Omentum* lying over it. In this caſe you muſt dextrouſly free the Gut from the Teſticle, and leave a ſmall portion of the *Omentum*, adhering to either of them, rather than endanger the hurting them.

The *Omentum* is almoſt ever corrupted, and for this Reaſon a Ligature muſt be made, and the tainted part taken of. Sometimes indeed in Recent *Hernia's*, there is not time enough to admit of any alteration, and then you may replace it in the Belly without farther trouble. If the *Omentum* cleave to the Gut, and there be no change diſcernable in it, reduce both together without taking off any part of the former. If both together adhere to the Bag of the *Peritonæum*, take off part of the *Peritonæum*, rather than touch the Gut, and if it cannot be otherwiſe diſengaged, as when the *Omentum* adheres to the Bag, it is better to take off part of the laſt, than the firſt. But the *Omentum* being unable to remain long in that State without being altered, it ſeldom happens but that ſome part is requiſite to be cut off.

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In making a Ligature on the *Omentum*, you muſt be careful not to make it too ſtraight, becauſe it eaſily cuts through it, by reaſon of its ſoftneſs. You muſt turn the Thread ſeveral times round, firſt paſſing the Needle through its Subſtance.

THE DRESSING. Thruſt into the Wound a long Tent of Linen capped at one end, and flat at the other; for if you uſe Lint only, the Guts which are always driving down, will not fail to dilate the Ring, and hinder a good *Cicatrix*, and the Inteſtines will fall down again after the Wound is healed. Here obſerve to paſs a Thread through your Tent to draw it out at pleaſure, and hinder it from ſinking into the Belly. Next fill the Wound with Doſſils armed with good Digeſtives made with *Turpentine and Yelks of Eggs*, over them lay a Triangular Emplaſter, and a large Compreſs of the ſame Figure, Embrocate well the Neighbouring Parts with *Oyl of Roſes*, apply good defenſatives to the *Scrotum*, and Hypogaſtrick Region made of Compreſſes dipt in *Oxycrate* very Hot. Laſtly, keep up the *Scrotum* with a Bag-Truſs, and make the Bandage called *Spica*.

This is made with a Roller rolled at one end, which muſt be ſix Ells long, and three Inches broad. You muſt begin to apply the end of the Roller on the Wound, then paſs on to the Back, returning to the Belly, thence over the wound, thence between the Thighs, thence over the Wound, thence behind the Back, thence over the Wound, then over the Belly, then over the Thigh, then between the Thighs, then over the Wound, then behind the Back, continuing to make theſe rounds till the Roller is ſpent; and laſtly faſten it with Pins at the extremities; every time the Roller paſſes over the Wound, you muſt leave ſmall Interſtices, in which a third part of the Roller beneath is ſeen. The whole figure ſomething reſembling an Ear of Corn, from whence this Bandage derives it Name: We have deſcribed Truſſes for the *Scrotum*, in the Operation of the *Hydrocele*, where the Reader may take the pains to turn to them.

THE CURE. The Wound muſt be treated with good Digeſtives to procure Suppuration, and a firm *Cicatrix*. When the *Pus* becomes laudable, that is white, of a good conſiſtence, and without any ill ſcent, you muſt deterge and cleanſe it like all ordinary wounds. The Patient muſt be nouriſhed with good Broths, and from time to time Clyſters given, with other general Remedies, as the nature of the Symptoms ſhall require.

RE-

REMARKS.

Fabricius Hildanus, Cent. 2. Obſ. 81. Relates that a certain Gentleman named *Daniel de Chalou*, who for ſeveral Years had been afflicted with an *Enterocele*, chanced to uſe ſome violent Exerciſe, upon which the Gut fell into the *Scrotum*, whence came great pain in his Belly, continual Vomiting, great Reſtleſneſs, and a Retention of the Urine and Excrements. Having neglected to take any care for remedying this, all the Symptoms encreaſed, by reaſon of the violent pain in the Belly. After two or three days he fell into a *Coma*; Upon the fourth day the Urine was perfectly red, and the Patient made it without Difficulty. When the Patient was ready to expire the Urine, reſumed its natural Colour and Conſiſtence.

CHAP. IX.

Of the Operation of the Exomphalos.

THE Exomphalos is a *præternatural Tumour of the Navil, made by the extruſion of ſome of the* Viſcera.

The Operation is *an Inciſion made on the Tumour to reſtore the Parts to their Natural place.*

THE CAUSES. To have a right Knowledge of the Cauſe of this Diſtemper, it is requiſite to conſider the Structure of the Navil. This is formed by the uniting of the Umbilical Veſſels, which obliquely ſliding into the *Peritonæum*, are accompanyed with that, and both together ſtriking through the *Linea alba*, terminate in the Surface of the Skin. The Ways through which theſe paſs, are no leſs viſible in the *Fœtus*, than the Rings in the Muſcles of the Lower Belly in Adults; but after the Birth the Veſſels dry, ſhrink degenerate into Ligaments, and are no longer pervious, and the contiguous parts encreaſing, while theſe remain unalter'd, the Navil is neceſſarily pulled in by them. The difference between Umbilical and the Spermarick Chanels in the latter are permeable diſtinct, and eaſily ſeparable from each other. The former impervious, contracted, and the Tendinous Fibres of each *Aponeuroſis* ſo enterlaced with each other, they ſeem to compoſe one Continuous

nuous Body. Beſides we may obſerve, the Navil is encompaſſed with a Circle deſtitute of Carnous Fibres, for half a Fingers breadth round, all which circumſtances concur in forming an *Exomphalos*, and differ very little from thoſe deſcribed in the *Bubonocole*.

THE SIGNS. If the Gut is the Cauſe of this Swelling, it is called *Enteromphalos*; if the *Omentum Epiplompalos*; if Water *Hydromphalos*; if Wind *Pneumatomphalos*; if Fleſh *Sarcomphalos*; and *Vaicomphalos* if it be the Veſſels. If it be a *Hydromphalos*, the Swelling is pliant, and yields to the impreſſion of the Fingers; you may diſcover it to be Tranſparent, by ſetting a Candle behind the Water, it makes a ſmall noiſe if you ſtrike on the part, and you may perceive its Motion. The *Pneumatomphalos* yields to the Fingers inſtantly, returning to the ſame Magnitude; reſounds if you ſtrike on it, and it is always equal, and of the ſame Figure in whatever Poſture the Patient be put. The *Sarcomphalos* is hard, the Swelling is large, and does not yield to compreſſion. The *Enteromphalos* is a Tumour a little Hard, with Tenſion, narrow at the Baſis, and Swelling out if the Patient holds his Breath, it abates if you preſs it with your Hand, making a little noiſe in the Subſiding, which is more ſenſible if the Patient be laid on his Back when the Compreſſion is made. In the *Epiplomphalos*, the Tumor is ſofter and larger on one ſide than the other. Its Baſis is larger, and in Compreſſing it ſubſides without the leaſt noiſe.

This is more dangerous if an Inflammation ariſe and create an Abſceſs, which coming to break the *Viſcera* force out of the Belly. Infants are more eaſily cured of theſe Diſeaſes than Perſons advanced in years, and Ancient People ſeldom recover. Children have their Fleſh more ſoft and ſpungy than Adults, and theſe ſtill more than old Bodies, which very much aſſiſts the Cure.

The OPERATION.

Before you begin, you muſt remove all impediments of the Reunion of the Parts, ſuch as Inflammation and Repletion of the Guts with Excrements or Wind.

The Inflammation muſt be diſcuſſed by Bleeding, and Unction with *Oyl of Roſes*, *Lilies*; the Guts cleared from Wind or Excrement by Clyſters, with Decoctions of the Emollient Herbs, as *Mallows*, *Marſh-Mallows*, *Pellitory of the Wall*, with a Thouſand others of the like nature, amongſt

mongſt the reſt; you muſt not forget to put in *Aniſeſeeds* bruiſed, and give the Clyſter pretty Hot. After theſe Preparatives, proceed to the Operation.

To perform this, the Patient lying on his Back, pinch up the Fleſh which covers the Tumour, one end of which a Servant muſt hold, and your ſelf the other, then with a ſharp Knife make an Inciſion the length of the Swelling, taking care not to hurt the Umbilical Veſſels, eſpecially the Vein which ſuſpends the Liver, becauſe that *Viſcus* not being ſuſpended, would compreſs the *Vena Cava*, and totally intercept the Circulation of the Blood. If the Skin be ſo Tenſe that it cannot be pinched up, make an Inciſion with a ſharp Knife to the Fat, which you muſt tear with your Nails or Fleam; for you muſt not make your Inciſion deeper, for fear of wounding the Inteſtines. When the *Peritonæum* is laid bare, draw it up with your Nails, to make a ſmall aperture with your Sciſſors, then put the forefinger of your left Hand into this aperture, to guide the point of the Sciſſors or Knife, and ſo enlarge your Inciſion.

If the *Omentum* adheres to the *Peritonæum*, diſengage it, directing your Knife more toward the former than the latter. If the Guts adhere to the *Omentum*, you muſt be careful in freeing them not to hurt them, leaving ſome part of the *Omentum* cleaving to them. Sometimes there is a Carnous Maſs appended to the Gut, which muſt be removed as well as all that part of the *Omentum* which is corrupted; in order to this make a Ligature in the Sound part, and all the reſt with your Sciſſors or Knife. Next reduce all the parts into the Belly, and to procure a firm cloſe Cicatrix, Scarifie all round the Lips of the Wound. Then make the interrupted Surure, obſerving all circumſtances directed in the *Gaſtroraphia*, or ſtitching of the Belly.

THE DRESSING. Apply to the Wound a Pledgit dipt in ſome Balſam or Spirituous Liquor, Embrocate the Belly round the Navil with *Oyl of Roſes, with a little Spirit of Wine*; Then lay on a Good Emplaſter, and over this Compreſſes well wetted in ſome good Defenſative, and keep all on with the Napkin. This is doubled lengthways into three Folds, and then Rolled at both Ends, its middle applyed on the Part affected, and ſo brought round the Body pinned at the end, and kept up by the Scapular. The manner of making and applying it, is deſcribed in the Dreſſings of the *Gaſtroraphia*.

A *Machine* to *check the Motion of the Belly deſcribed.*

* Since nothing more impedes the Coalition of Wounds of the lower Belly than its continual Motion, nothing can be more ſerviceable here, than ſome Machine adapted to check this, and ſuch an one may be made after this manner. Double a pretty thick Iron Wire, in ſuch a Figure it may embrace the Waſt. This Machine muſt have two Cavous Plates at each end, in ſhort it muſt be like that Women uſe to ſtiffen their Commodes with. This is to be applyed in ſuch a Manner behind on the Loins, that both Plates may extend forwards, and preſs by their elaſticity the ſides of Belly, which Compreſſion prevents the Dilatation of the Wound. This Inſtrument muſt be covered with Dimetty or ſome ſuch ſoft Matter, and ſtuffed with Cotton like Truſſes to prevent galling.

In an *Exomphalos*'s ariſing from Inflation, or when the Parts ſometimes retire into the Cavity of the Belly, few Perſons will be perſwaded io ſubmit to the Hazard and Trouble of the Operation.

A *Machine for the* Exomphalos.

The Machine I am now about to deſcribe, is contrived to prevent the Parts from intruding into the Tumour, and differs very little from a Truſs with three Branches. The Form of it is thus. Take a Thick Steel Wire, bend it and make a Truſs like thoſe commonly uſed in double *Hernias*. Then make another Branch which is to be fixed to the knob on each ſide, to which fit a round knob to be applyed to compreſs the Tumour on the Navil. This Inſtrument is proper for thoſe Perſons who have a *Hernia* on both ſides, and an *Exomphalos* with it, and is more commodious than any Bandage, which in compreſſing the Belly obſtructs Reſpiration, whereas theſe by their Spring complying with the al-

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* Fabricius ab Aquapendente *makes a Truſs of double Dimetty or Linen Cloth with a Hollow Plate with a Round Cake, on the Part which lies on the Navil, in the Center of which is a round Knob of Lint which goes into the Breach or Dilation of the Navil, to hinder the Extruſion of the Guts, and on this a proper Cerate or Glutinating Emplaſter is laid, and ſo bound ſtreight round the* Abdomen *from the Truſs, ſo binds over the ſhoulders to hinder it from falling down, and Straps on the lower part between the Legs, to hinder it from riſing up.*

Our Country-Man Wiſeman *in Ruptures of the Navil, makes a Bracer to lace in the whole Belly from the* Cartilago Enſiformis *to the* Os Pubis, *under this on the Navil. He puts* Empl. ad Herniam *with a quilted Bouſter over it wrought in Sole Leather, and tacked to the Bracer. V.* Wiſemans *Chirurgery*, Lib. 1. c. 8, *from* Sect. 35 to *Sect.* 39.

ternate

ternate riſing and falling of the Part in that Action, are not liable to the ſame inconvenience.

THE CURE. Digeſt the Wound with good Balſamicks to procure a firm *Cicatrix*, and continue to treat it after the uſual manner; Preſcribe the Patient a good Dyet, nouriſhing him with proper liquids, frequently interpoſing Clyſters.

If the Tumour ariſe from a Maſs of Water collected there, attempt to diſperſe it, chafing the part well with *Oyl of Turpentine*, applying Hot Bags filled with *Camomil* and *Elder Flowers* boyl'd in *Wine*, or other proper Diſcutients.

REMARKS.

Antionette Fautras, a certain Woman of the Village of *d' Ambigné*, in the *Maine*, being big with Child, attempting to lift a Buſhel of Corn, with the vehement ſtraining burſt the *Peritonæum*, and the Guts inſtantly ruſhed into the Navel with as great a Noiſe, as the going off of a Piſtol, notwithſtanding which Accident, ſhe was delivered of a Boy at her due Term, and that with leſs Pain and Difficulty than of her former Children, and after lived and enjoyed her Health very well.

Blancard relates the Hiſtory of a Child born with a Tumour on the Navel as large as both Fiſts. The Navil-ſtring as big as the little Finger, and above an Ell and an Half in length, and ſo Tranſparent, the Guts were viſible thro' it. The ſame Author mentions a Child born with his Guts hanging out, which lamentable Accident he tells you was occaſioned by the Mothers having ſeen the like Spectacle in a Cat run over by a Coach, a little Time before her Delivery.

CHAP.

CHAP. X.

Of Caſtration.

THis Operation is an *Amputation of the Teſticle.*

THE CAUSE. Divers Caſes may happen where all other Methods will be ineffectual: as for inſtance, When the Teſticle adheres firmly to the Gut, and cannot be ſeparated without loſs of Subſtance: When in great Contuſions the *Veſſels* and *Veſiculæ* are cruſhed, and the influx of the Blood is intercepted: When there is a Varicoſe ſwelling which cannot be diſcuſſed by the uſual Applications, or laſtly when the Part is infeſted with ſome Excreſcences of long ſtanding.

Theſe Excreſcences are ſometimes in the Subſtance of the Teſticle, and ſometimes on its Membranes only; and ſeem to be form'd out of the more Oyly and Viſcid part of the Blood, imported by the Spermatick Arteries, which eſcaping through the Poroſities of the Veſſels, is harden'd and condenſed by the Heat of the Part: This Extravaſated Matter being lodg'd in the ſmall Tubes, grows Acrimonious, corrodes, huffs up and diſtends them, and ſo produces Fungous and Cancrous Swellings.

When the external Membranes are affected, they communicate the Cancroſity to the Productions of the *Peritonæum*, and ſometimes it extends to the parts contain'd within the Cavity of the Belly: But in this caſe the Operation is uſeleſs, ſince not being confined to the *Tunica Vaginalis*, you muſt deſtroy the Veſſels, Rings, and other Parts contained in the *Hypogaſtrium*, to extirpate it.

Whatever is apt to cauſe obſtructions, may create an Inflammation in this Part: Thus Seed infected with the Pocky Malignity, ſometimes ferments and tumefies the Teſticles.

If a Compleat *Hernia* made by Deſcent of the Gut, happen when there is any Ulcer or Carnoſity in the Teſticle, the Sanious Matter iſſuing from them, excoriates the Gut, and glews it ſo firmly to the Teſticle, that it is impoſſible to ſeparate them without taking off the latter. Contuſions proceed from ſome external Cauſe, ſuch as Blows, Falls or Cruſhes, which Accidents break the Veſſels, and the Blood

and Humours ſtagnating in the Parts create Tumours, Abſceſſes and Ulcers.

THE SIGNS of an Adhæſion of the Teſticle to the Gut, is manifeſt to the Naked Eye, when Part of its Subſtance is deſtroyed, and taken off to free the Gut, and make the Operation in a perfect *Hernia*. The Sign which without opening the *Scrotum*, demonſtrates the adhæſion of the Teſticle to the Gut, is that the Gut has remained for ſome time in the *Scrotum* without re-entring the Belly, which yet is not very certain. You may conclude the Teſticle is bruiſed, if the Patient feel a violent Pain, and after ſome blow or cruſh it ſwells. Excreſcences are diſcerned by their Bigneſs, Weight and Hardneſs.

Swellings of the Teſticles are to be feared, becauſe Abſceſſes and Schirroſities frequently follow, if Reſolvents have been omitted in the beginning. Inflammations of the Teſticles are dangerous, becauſe they uſually terminate in Abſceſſes, and ſometimes gangrene.

There remain frequently Schirrous Swellings after Contuſions, which incommode the Patient all his Life, and ſometimes the Teſticle mortifies. If the Swelling be Hard, Schirrous, Painful, and Inflamed, or be of long ſtanding, and both Teſticles are affected, the Operation will be dangerous.

The OPERATION.

Place the Patient on his Back, with his Buttocks raiſed higher than his Head, and his Legs ſtradling, which muſt be held by two Servants.

Pinch up the Skin of the *Scrotum*, and let a Servant hold it at one end, and your ſelf at the other, make an Inciſion lengthways, (or without pinching the Skin, let the Inciſion be made on the Body of the Teſticle) Then free free the Carnoſity from the *Dartos*, which inveſts the Teſticle without hurting the Cover of the Spermatick Veſſels, and make a Ligature betwixt the Rings and the Swelling. Cut about a fingers breadth below the Ligature, and take off the Teſticle with the *Sarcoma*, leaving the End of the Thread hanging out of the Wound, without drawing down or compreſſing the Spermatick Veſſels, leaſt you throw the Patient into a Convulſion.

If the Cancroſity ſpread it ſelf on the Productions of the *Peritonæum*, conſume the Superfluous Fleſh by Cauſticks, or waſt it with ſtrong Suppuratives before you proceed to the Opera-

Operation. When the proud Fleſh is removed, and the Eſcar ſeparated, make a Ligature on the Spermatick Veſſels near the Rings of the Muſcles, and ſo take off the Teſticle. If the Ligature be made before the ſeparation of the Eſcar, the Patient will be convulſed. If the Carnous Excreſcence be moveable, and do's not adhære to the Teſticle, free it and chooſe rather to leave ſome little part of this Excreſcence remaining on the Body of the Teſticle than endanger hurting it. If any Veſſels appear, make the Ligature before you cut the Excreſcence off.

THE DRESSING. Fill the Wound with Doſils armed with a good Digeſtive, Embrocate with Anodynes, Apply Compreſſes dipt in Defenſative Liquors, as *Oxycrat* or *Red-wine* very Hot, and laſtly keep the Applications on with the Bag-Truſs deſcribed in the *Hydrocele*.

THE CURE. Digeſt the Wound for ſome time with *Turpentine, and the Yelk of Eggs*, to procure a good *Cicatrix*, and conſume the remains of the ſuperfluous Fleſh. If you perceive any Inflammation, have recourſe to Bleeding and Clyſters. Be ſure to keep the Wound clean, and when you obtain a laudable *Pus* begin to cicatrize; The Patient muſt abſtain from all things Salt, Acid, or Sharp.

REMARKS.

Riverius relates an Obſervation of a Man, who upon a Fall from a Horſe cruſht his Teſticles, which tumefied to that degree, the *Scrotum* was as big as a Mans Head. The Swelling ſuppurated plentifully, and there came forth Stones as hard as Flints. The Patient had a Fever and Thirſt which encreaſt continually, Puſtules broke out over all his Body, and his Strength decayed by degrees till he dyed.

Kerkringius aſſures us, He had ſeen a young Man who had no Teſticles in the *Scrotum*, his Voice was very Muſical, and charmed even the moſt inſenſible of the Pleaſures of Muſick. He happened to have a Feaver about 18 Years of Age, felt a violent Pain in the *Scrotum*, and found two great Teſticles fall into them, upon which he loſt his Fine Voice, which became like that of other Men.

CHAP. XI.

Of the Phymoſis.

THIS Operation is an *Inciſion of the Prepuce, to give way for denuding the* Glans.

THE CAUSE which makes this Inciſion neceſſary, is a contraction of the Prepuce, which ſtrongly compreſſes the *Glans* of the Yard, which except it be diſengaged, becomes inflamed and mortifies.

This Impriſonment of the *Glans* is ſometimes Natural, and proceeds from its being wrapt in the Prepuce, and not freed from it by any Venereal Exerciſe or Handling. When this Diſeaſe is Natural, the Prepuce forms ſeveral Wrinkles, between which a Tenacious Slimy Matter is lodged, which ariſes from the *Glans*, and glews the Prepuce very ſtrictly to it, ſcarce leaving a Paſſage for the Urine. Sometimes this Diſeaſe is Accidental, and proceeds from ſome Inflammation, Chancre, Wart, Schirroſity, or Unskilful Uſe of Corroſive Medicines; but whatever the Cauſe be, the free Circulation of the Blood is interrupted, the Part exceedingly inflamed, and the Fibres of the Prepuce very ſtiff and ſtubborn.

The vehement Pain proceeds from the Thinneſs and exquiſite Senſe of the Membrane of the *Glans*, which is compoſed of, and interwoven with a multitude of Nerves; which Structure renders it very ſenſible, when it is moleſted by any Pungent or Corroſive Matter.

THE SIGNS. This Diſeaſe is evident, The Patient finds great Difficulty in making Urine, has violent Pains, cannot uncover the *Glans*, and moſt commonly a Matter like Plaſter is lodged between it and the Prepuce.

The OPERATION.

This muſt not be undertaken, till all other Remedies have been tryed, ſuch as Bleeding, Warm Baths, Digeſtives mixed lightly with ſome preparation of *Mercury* (and introduced between the Prepuce and the *Glans* with the end of the Probe) *Galens* Cerate, Emollient Injections, a ſmall Ball of Lint inſinuated in between the *Glans* and the Skin, Compreſſes dipt in *Oxycrat*, *&c.*

Obſerve

Obſerve here in all Diſeaſes of the Yard, (and ſo in the uſe of theſe Medicines) it is very Commodious to lay it on the Belly, and keep it Suſpended in this Poſture by a ſmall Bandage, the Deſcription of which the Reader may find in its proper place.

If the Prepuce be firmly united to the *Glans*, which is known by the Skin not being brought over, and no Probe paſſing between it and the *Glans*, the Operation will be dangerous, and cannot be done without firſt diſengaging the Prepuce from the *Glans*, and creating a great deal of Pain, and endangering a Mortification of the Yard.

When you judge the Caſe will admit of Operation, Let the Patient ſtand or ſit as you like beſt. Draw the Extremity of the Prepuce as far back as you can, and command an Aſſiſtant to keep the Skin down at the Root of the Yard, (that the Inciſion may reach exactly to the bottom of the *Glans*) then introduce a ſmall Inciſion-knife, with a button of Wax on its point (to prevent wounding the part) under the Prepuce, and cut through it. If one Inciſion be not ſufficient, make another on the oppoſite ſide.

THE DRESSING. Lay on the Wound a ſmall Pledgit arm'd with ſome good Balſam, and over this a Compreſs in form of a Croſs, perforated in the midſt for the paſſage of the Urine; and keep theſe on with a narrow Fillet near three quarters of an inch broad. This Fillet muſt be of a ſufficient length to cover the whole Yard by its Circumvolutions, have a Hole made at one end, and the other end ſlit lengthways above an inch and a half. In applying this, paſs the two Tails or Slit end through the Hole at the other end, then draw it as ſtrait as is convenient; make ſeveral Circumvolutions ſpirally, till the whole Yard be cover'd, and the Fillet ſpent, and then faſten it by the two Tails.

If you judge it neceſſary to cover the Pledgit with an Emplaſter, make this of the ſame Figure, and let it be perforated in the midſt like the Compreſs.

For the Patients eaſe, and to prevent the Inflammation of the Part, make a Linnen Caſe of an equal length with the Yard, and large enough to contain it with all its Dreſſings: Let this Caſe have a Perforation at the end for the paſſage of the Urine, ſtitch two ſmall ſtraps at the lower end on each ſide, and one to the upper, which may be long enough to be faſtned to the Band which goes round the Waſt to ſuſpend the Yard, and prevent Pain and Inflammation.

This Caſe is of ſingular uſe to prevent painful Erection in Priapiſms, Virulent Gonorrhæas, Heats of Urine, and other Diſeaſes incident to this Part.

THE CURE do's not differ from the uſual Method, in all ſimple Wounds. For inſtance, If any Inflammation ariſe, have Recourſe to Bleeding, Cooling Clyſters, and a Regular Diet, and when the Wound is incarned, Cicatrize it.

REMARKS.

Fabricius Hildanus, *Cent.* 4. *Obſ.* 8. Relates the Hiſtory of a Young Man of 22 Years of Age, who from his Infancy had a Prepuce of a monſtrous Size, contorted before in ſuch a manner, that in the emiſſion of his Urine the ſtream was diverted on one ſide, and wetted his Cloaths. The Prepuce was not Membranous, as it ordinarily is, but a Carnous Subſtance, and when he made Water, a great part of the Urine was detained by it; to prevent which, he was obliged to draw the *Glans* out with his Fingers. This conſtant Handling made the Yard ſwell prodigiouſly, and the inferior part commonly call'd the Suture, was exceeding Tenſe and Horney. The Author cut off this Prepuce cloſe to the *Glans*, and the Patient was happily cured of this inconvenience. Before the Operation he had uſed all kinds of General Remedies, and now after it he applyed Reſtringent Powders to ſtop the Blood, and in order to keep the Yard ſtreight, put a Pipe into the *Urethra*.

CHAP. IV.

Of the Paraphymoſis.

THIS Operation is the *Reducing the Prepuce over the* Glans, *when it is ſo far retracted, that it cannot cover it without the help of Manual Operation*.

THE CAUSES. The Strangulation of the *Glans* is caus'd ſometimes by a ſimple Retraction of the Skin, which forms a Roll round the Yard, and at other times by an Inflammation of the Prepuce, from ſome preceeding Cancre or Tumour. The Yard is often exceedingly ſwoln, and there are two or three Rolls one over another, which mightily intercept the Refluent Blood. When this happens, it is almoſt ever

ever attended with a ſwelling in the lower part of the Prepuce, fill'd with a reddiſh Water, rarified and converted into a windy Matter by the Heat of the Part.

THE SIGNS of a *Paraphymoſis* are a Tumour of the Yard and Rolls on the Prepuce. There is ſometime an obſervable ſwelling under the Prepuce, filled with a reddiſh Water, which riſes to ſuch a Height, that except you Scarifie deeply the tumified place, to give a diſcharge to the Part, the Yard neceſſarily Mortifies.

The OPERATION.

To reduce the *Prepuce*, you muſt uſe both forefingers and both Middle fingers. Place theſe beneath the Rolls, formed by the tumefied Prepuce, and with the two Thumbs compreſs the ſides of the *Glans*, to leſſen its Bulk, and ſo draw on the Prepuce. You muſt not thruſt back the end of the *Glans*, to make the Prepuce come over it; becauſe it enlarges it ſelf, which hinders Reduction. If the Inflammation be very great, and renders this Method impracticable, apply Compreſſes dipt in *M. Lemeries*, or ſome other Styptick Water, and when that is abated, proceed as before.

THE DRESSING is the ſame with that uſed in the *Phymoſis*.

THE CURE. While the Diſeaſe remains, the Method of Cure do's not differ from that of the *Phymoſis*.

Fabricius Hildanus informs us, He cured a *Paraphymoſis* in very Plethorick Gentlemen by the following Method. In the firſt place to keep the Patients Body cool, he enjoyned him to ſhun all manner of ſtrong Drink, purged him with Cholagogues, and bled him copiouſly in the Arm; then he applyed a cooling Liniment twice a Day to the Region of the Kidneys, and the following Cataplaſm as often to the ſuffering Part. ℞. *Barley Flower* ℥iv. *Powder of Roſes*, ℥ij. *Pomgranat Flowers and Cypreſs Nuts*, ℥i. *Boyl the Ingredients in Roſe and Plantain Water. Make a Cataplaſm with theſe, with the Addition of Yelks of Eggs, which is to be repeated twice a Day.*

Theſe Application being continued for ſeveral Days, the Pain abated very much. But a great erection happening one Night, obſtructed the Cure, and the Prepuce violently compreſſing the *Glans*, all the Symptoms encreaſed. Upon this he ordered him to forbear all Commerce with his Wife, not permitting him ſo much as ſee with her,

purged him with Cholagogues, uſing outwardly the following Liniment. ℞. *Oyl of Violets, Nenufar and Roſes,* ā ℥i. *Oyl of Henbane by expreſſion,* ʒij. *Camphire diſſolved in Vinegar of Roſes,* ʒi. *Mix theſe in a Mortar.* Beſides this he gave him a Doſe of *Laudanum* after Supper, after which he had better Repoſe than ordinarily, and the Erection was leſs troubleſom. He perſiſted to give him *Laudanum*, which ſeldom exceeded two Grains, and outwardly to uſe the Liniment above deſcribed, and continue Cataplaſms to the Part. The Swelling of the Yard abated ſoon, the Patient was cured, and had ſeveral Children after. But we muſt not omit here his caution to young Practitioners not to uſe the Cataplaſm above mentioned, if the *Paraphymoſis* proceed from impure Embraces, leaſt the Malignity of the Diſtemper be repelled, and ill conditioned Ulcers enſue.

REMARKS.

Fabricius Hildanus, Cent. 3. *Obſ.* 88. Tells us, a certain Smith of 40 years of Age of a Melancholick Habit, had a ſmall Wart on the extremity of his Prepuce of the bigneſs of a Vetch. This Man being Marryed, found a great and continual Pain in this Excreſcence upon the embraces of his Wife, which obliged him to forbear knowing her for thirteen Years. The Pain increaſed by little and little, and at laſt degenerated into a Horrible Cancer, as big as an Infants Head. The whole Yard became a Huge deformed Maſs of Fleſh, with ſeveral Ulcers on its Surface, thro' which the Patient diſcharged his Urine: The noiſom ſcent of this *Cancer* was ſo great, that no one could endure to come near it. The Author made an Amputation of the Yard, and cured him perfectly.

CHAP.

CHAP. XIII.

Of Lithotomy *or Cutting for the Stone.*

THIS Operation is *Inciſion made in the* Perinæum, *to extract the Stone through the Aperture.*

There is no Animal, except Man alone, infeſted with this Diſeaſe.

THE CAUSE. The Ancients did believe the Stone to be formed by the more Viſcid and Fæculent parts of the Blood paſſing off with the Urine, and ſetling in the Bladder. *Hippocrates* is perſwaded, it proceeds from the more Terreſtrial and Heavy parts of the Urine it ſelf, which in too long a Retention of it, ſubſide and ſink to the bottom of the Bladder, like Sand in a Veſſel of Water, and are there bound together by a thick ſlimy Matter, which compacted Maſs, in proceſs of Time encreaſes by the ſupply of new Materials. *Fernelius* conceives, all Stones are firſt formed in the Kidneys, and fall from thence by the Ureters into the Bladder. This Opinion he founds upon an Obſervation, That he had ſeen no Perſon afflicted with the Stone, who had not before felt Nephritick Pains: This he farther confirms, by aſſuring us, that in moſt great Stones when broken, there is found a ſmall Kernel in the center, of the ſame Colour and Conſiſtence with the Stone, and of a Figure agreeing to the Baſin of the Kidneys, and incloſed in a Caſe of a different Colour from it.

* But the Modern Chymiſts ſeem to me to frame the moſt plauſible Theory of the Formation of the Stone in Animal Bodies. Theſe Gentlemen in Analyſiing the Urine by Fire,

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* *Our Author ſeems to be miſtaken in repreſenting* Helmonts *Opinion of the Generation of the Stone*: Spirit of Nitre *and* Spirit of Wine *ſtir indeed, and that with great Heat and Tumult, but after combine and compoſe a Temperate Liquor, or* Spiritus Nitri dulcis. *The true* Helmontian *Hypotheſis, is that the* Duelech *or Animal Stone is formed by a Volatil Salt coagulated by a Vinous Sulphur; which conjecture he forms on the Famous Experiment of mixing Spirit of Wine and Spirit of Urine both perfectly dephlegm'd (for the leaſt Aqueoſity remaining, defeats the Tryal) both which Liquids inſtantly coagulate into a Hard, Dry Subſtance, which he calls* Offa Alba. *See* Helmont de Lithiaſi.

find

find in it two conſtituent Principles, *viz.* a Urinous Salt of a Volatil and Nitrous Nature, and pure Sulphur not unlike a Vinous Spirit. Now Experience ſhews us, That upon mixing Spirit of Wine and Spirit of Nitre, a *Coagulum* will reſult in an inſtant; it is very eaſie and natural to ſuppoſe, that the like Principles exiſtent in the Urine, leaving their Superfluous Phlegm, may unite, precipitate, and produce the like effect.

Van Helmont do's not think the Principles of the Urine alone ſufficient, for the Production of the Stone; but adds a Petrifick Ferment, which he places in the Kidneys and Urinary Veſſels, and reckons up as a Third Agent, required to fix and coagulate the former. *There is no Tranſmutative principle in Nature*, ſays that Author, *without a Ferment*; *The Inteſtine Motion of the Particles of the Urine, is not the immediate Cauſe of its Corruption*; *Its Putrefaction do's not ariſe from any vitious Diſpoſition of the Urine, but from a peculiar corruptive Ferment reſiding in the Kidneys, and other Veſſels.* This he illuſtrates by the Similitude of a Veſſel, in which any Acid Liquour has ſtood for ſome Time, which Coagulates and ſours Milk; by Leaven which ferments Dough, and by the Taint of a Muſty Veſſel, which alters and corrupts Wine, or any Liquor put into it. This Ferment which for its fineneſs and ſubtilty, bears ſome Analogy to the Odoriferous Steams iſſuing from Scented Bodies, he calls it *Odor* or *Scent*; and of ſuch a Nature he pretends the Ferment is, to whoſe Petrifying influence, he aſcribes the Origin of the Stone; and to confirm the exiſtence of ſuch a Ferment, he alledges this Experiment, That Urine will ſooner putrifie in a Veſſel tainted with it before, than in another which is clean and new.

Having laid down the neceſſity of a peculiar Ferment to perfect this Work, he proceeds to Explicate the manner how it is performed. He aſſures us, he has found in a Spagyrical Examen of the Urine a Nitrous Spirit, which he terms the *Coagulator*, and another Spirit not unlike Spirit of Wine. Beſides theſe, ſays he, There is in Urine a Terreſtrial Styptick Spirit, which by the Aſſiſtance of the corruptive Ferment, is volatilized and imbibed by the Urinous Spirit, and theſe two uniting, excite and put into Motion the Vinous Spirit, which before lay dormant in the Pores of the Urine. At laſt after ſome conflict and mutual Action they combine together, Præcipitate and Form a Stone in the midſt of the Liquor

Liquor. From hence he infers, Stones are form'd in an Inſtant, and grow gradually; tho' ſometimes too he ſuppoſes they receive a conſiderable Addition in a Moment of Time.

Ill Diet conduces much to the generation of the Stone; for inſtance, all Spirituous Drinks, Sharp Sauces, Milk-Meats, Fruits, Rye-bread, and the like; The latter upon the Account of their Foulneſs, and the former upon the Account of their Spirituous parts. The one furniſh Materials for the Stone, and the otherr the Petrifick Ferment. Nature too oftentimes as well as Diet, has a ſhare in this matter, and the Stone proceeds from ſome Petrfying ſeeds we inherit from our Parents, and keep all our life after.

THE SIGNS. The Stones found in Humane Bodies differ very much, as Small, Great, Smooth, Unequal, Flat, Round, Oval, Square, Hollow, Light, Heavy, Hard or Soft; ſome have Kernels, others not; ſome are White, Gray, Red, Black, Brown, or of other Colours; ſome adhere to the Parts, as the Sides, Bottom or Neck of the Bladder, others are looſe; ſome are in the Kidneys, *Ureters*, Bladder or *Urethra*; ſome are included in *Cyſtis*'s, others not. In ſhort, they are found in all Parts of the Body.

If a Stone be lodged in the Kidneys, there is an Inflammation, a Violent and fixed Pain, (which encreaſes if you preſs the Part with your Hand.) There is a Feaver and Suppreſſion of Urine, which deſtills drop by drop, and ſometimes is Bloody, which proceeds from the fretting of the Veſſels by the growing Stone. Muddy and Purulent Urines, diſcover the Blood to be Extravaſated, and an Abſceſs in the Kidneys. In this caſe Vomiting, a Stupor of the Thigh and Leg enſue, and the Patient cannot endure to keep his Body ſtraight, the Teſticle of the ſame ſide is retracted into the Groin, and ſometimes *Pus* is evacuated with the excrement; for the purulent Matter corroding the Gut, runs thro' it, and paſſes off with the *Fæces*.

The Communication between the Nerves of the Kidneys and Stomach, and the agitation of the Spirits in the Carnous Fibres of the Stomach by the Inflammation of the Kidneys, are the cauſes of the Vomiting.

The Kidney lying on the Head of the Muſcle *Pſoas*, compreſſes and inflames it, and this inflamed Muſcle preſſes the great Trunk of the Nerves, (which paſſes through its ſubſtance, and is diſtributed to the fore part of the Thigh and Hip,) and from hence proceeds the *Stupor*, becauſe the free influx of the Spirits is interrupted. The *Pſoas* and Iliac Muſ-

Muſcle contiguous to it being inflamed, (which two Muſcles are the Benders of the Thigh) they cannot obey or follow the motion of the Extenſors; and this is the reaſon the Patient cannot keep himſelf erect, without enduring vehement pain. The Iliac Muſcle being united to the *Cremaſter*, communicates its Inflammation to it, which cauſing a contraction of the Fibres of the latter, the Teſticle muſt of neceſſity aſcend to the Groin.

But after all, theſe Symptoms concurring are not ſufficient to give us an abſolute aſſurance there is a Stone in the Kidneys, ſince they all may attend an ordinary Inflammation of that part, as in the caſe of Nephritick Colicks.

We diſcover that there is a Stone in the Bladder, by a lively burning pain in Piſſing, and the Urine coming forth by drops, and after divers intervals, as in the Strangury.

The Stone ſometimes ſtops the Neck of the Bladder, and ſometimes wholly blocks it up, according to the ſeveral Motions it receives from the Urine; and this is the cauſe of theſe Intermiſſions. When the Bladder is evacuated its ſides rub on the Stone, which grates them by its hardneſs and inequality; and from hence proceed great Pains after Urining, and ſometimes drops of Blood. The Patient feels an itching in the *Perinæum*, which is continued to the extremity of the *Glans*, and obliges him to rub it: This ſometimes happens from ſharpneſs of Urine. The weight of the Stone is often felt, and the irritation of the Fibres ſometimes cauſes an involuntary Erection of the Yard. The Urine is ſometimes White, ſometimes Bloody, Thick, Turbid, Muddy, and full of Sand.

When the Urine is very clear, and there is Sand at the Bottom of the Urinal, this is a ſign of a Stone in the Bladder. If the Stone extracted be polite and ſmooth, it is a ſign there are more, by rubbing againſt which this ſmoothneſs is cauſed.

If the Stone be very large, and reſts in the Neck of the Bladder, it becomes equally large with its bottom. When it fixes to the bottom of the Bladder, and is contained in a *Cyſtis*, the Patient may carry it all his Life-time without any notable inconvenience, or the appearance of any of the ſigns above recited.

Among the Diagnoſtick ſigns, there is none more certain than the Reſiſtance of the *Catheter*, and the diſcernable noiſe from gently ſtriking on the Stone. The

The OPERATION.

This muſt not be undertaken, till you have a very good aſſurance of the exiſtence of the Stone in the Bladder.

To obtain a certainty of this, introduce your finger into the *Anus*, and turn it towards the *Pubis*, then bend it, at the ſame time preſſing the Bottom of the Belly with your other Hand, and if there be a Stone, you will feel it with your Finger. In Women or Grown Maids, you muſt put the finger up the *Vagina*, but in young Girls into the *Anus*.

But ſince Hard Swellings and Schirroſities may impoſe on you in this way of Examen, the *Catheter* is to be relyed on as the moſt certain evidence.

The firſt way of Searching.

Let the Patient ſit in a Chair with a Back, on which he may reſt or lie on his Back. Take the Yard by the *Glans* between the Thumb and forefinger, drawing it up ſtraight, compreſs the *Glans* a little to open the *Urethra*, into which introduce the *Catheter* with its Concave ſide downwards; when this is paſt in far enough for you to judge it is in the Neck of the Bladder, turn it quick and dextrouſly, and bring your Hand over the Patients Belly, and at the ſame time that you turn it, draw the Yard a little forward to keep the *Urethra* ſtreight and without wrinkles, which may hinder the entring of your Inſtrument.

If after turning the *Catheter* you find it did not enter, leave the Yard, and introduce your finger into the *Anus*, to guide the end of it into the Bladder. After this draw your finger out of the *Anus*, and quit the Yard to ſtrike with the Inſtrument, turning it every way to hear what noiſe it makes on the Stone. If it happens that the Stone ſwims in Urine, (for the Bladder muſt be full when you paſs the Inſtrument,) and you have reaſon to think this may hinder you from perceiving it, evacuate the Bladder by drawing out the Silver Wire in the *Catheter*, and after try as before.

Second way of Searching.

The following way ſeems more convenient, becauſe there is no need of turning the *Catheter*. Let the Patient lie on his Back, and holding the *Glans* between your forefinger and Thumb, raiſe the Yard up, inclining it a little on his Belly, hold the Rings of the Inſtrument on the ſide of the Belly, and compreſs

compreſs a little the *Glans* between your fingers to open the *Urethra*; then introduce the end of the *Catheter*, continuing to puſh it on gently, till it enters the Bladder. By proceeding this way, you ſave the Trouble of paſſing your Hand over the Patients Belly, and turning the Inſtrument.

The way of Searching Women.

To Search a Woman oblige her to lie on her Back, with her Buttocks a little raiſed, and her Thighs divaricated; then ſeparate the *Nymphæ* with the left Hand and with the right; introduce the Inſtrument into the Neck of the Bladder, as in Men. When you are well aſſured there is a Stone, prepare the Patient for the Operation by General Remedies, Bleeding, Clyſters, and other proper Medicines, to prevent any ill Habit of Body, having a bad influence on the Wound after the Operation.

The OPERATION.

Place the Patient on a Table of a midling height, with his Back ſupported on the Back of a lin'd Chair, his Thighs open, his Knees drawn up to his Belly, his Heels applyed to his Buttocks, and his Hands reſting on each ſide his Ancles. To keep him in this Poſture, Take a great Swathe three inches Broad, the middle of which is to be put about his Neck, and with each end of it the Arms are to be faſtned to the Thigh and Leg of the ſame ſide, each hand reſting on the out ſide of the Ancle of the Foot. This Poſture is exceeding convenient to hinder his ſtirring, to keep the Bladder ſteddy, and give liberty to the Muſcles of the lower Belly to perform their Actions. After this place a Servant on the Table behind the Patient, to keep him down by preſſing on his Shoulders, in caſe he ſhould attempt to riſe. All things thus prepared introduce a *Catheter* (not like the former, but with a Hollowneſs or Furrow along the convex ſide) into the Bladder, after the manner before deſcribed. The *Catheter* thus introduced, muſt be held by a Servant placed for that purpoſe on one ſide of the Patient, who muſt hold it with both his Hands, drawing up the *Scrotum* in ſuch a manner, that the back of the *Catheter* which thruſts out the *Perinæum*, may be between his two forefingers, and leave ſpace enough for you to make your Inciſion. The Inciſion muſt be made with a ſharp two edged Knife on one ſide the Suture of the *Perinæum*; which muſt be greater

greater or leſs, as you judge the Stone to be. To perform this dexterouſly, hold your Knife like a Lancet, and entring in the moſt prominent part, plunge it quite to the *Catheter*, continuing to paſs and repaſs it in the furrow of that Inſtrument, till you have laid as much bare as you deſire. This caution is neceſſary, leaſt if the Inciſion were made at ſeveral Times, there might be more than one Orifice.

In Men the Inciſion muſt be near two inches and an half long, in Children leſs. It is better to have it too great, than to be obliged to enlarge the wound with the Dilator, in caſe the Stone ſhould prove too great to be extracted thro' the aperture, becauſe ſuch violent diſtention tears and bruiſes the Fibres of the Bladder. The Inciſion if it be well made muſt enter the *Urethra*, and you muſt not draw the *Catheter* out of the Bladder, till you have ſlipt into its Furrow a Gorget or two Conductors, on which the *Forceps* is after introduced; for without the direction of theſe, you may eaſily miſtake and paſs them aſide, which too often happens; and whilſt the Operator thinks he is in it, and ſeeking the Stone feels it with his *Forceps*, inſtead of that pulls the Bladder and often tears it. When the *Forceps* is in the Bladder open it, and gently ſearch for the Stone, which when found hold faſt. You muſt never cloſe your *Forceps* in the Bladder, except when you have hold of the Stone, for fear of tearing its Membranes. When you would take hold of the Stone, open the *Forceps* with both Hands, and you may be aſſured you have hold of it, if its two Bows ſtand wide open.

If the Stone be Oval, and you have hold of it lengthways, looſe the Stone, and introduce your *Forceps* a ſecond time, and take hold of it another way. But obſerve here the wideneſs of the Bows alone is not a ſufficient evidence to aſſure you that you hold the Stone lengthways, ſince the ſame appearance will be, if the Stone be large; wherefore to obtain a more full information of this matter, enquire of the Patient how long he has been afflicted with this Diſtemper, (for the older the Stone is, the thicker it grows) or if he feels a great weight in his Bladder. You may farther judge of the thickneſs of the Stone, and perhaps of its Figure too, by introducing the Finger into the *Anus*, and feeling it through the Gut. When you have hold of the Stone with your *Forceps*, do not draw it directly out, but turn your Fiſt to the Right and to the Left.

If the Stone happen to adhere to the Bladder, you muſt not

not obſtinately reſolve to extract it, leaſt you tear the Membranes, but if it be fixed to the Neck of the Bladder, it will be freed without Suppuration. You may conclude that it is fixed to the Bladder; if not, being very big, it comes forth with Difficulty, and then you muſt proceed gently in extracting it.

If Stones are exceſſively large, as ſome noted in our Remarks, forbear extracting them, leſt the Patient expire in your Hands. If you perceive the Stone is broken in extracting it, put in the *Forceps* again, and draw out the fragments in the ſame manner as the whole, and bring out the clotted blood with the Spoon. If the Patient be very weak, remove him to his Bed, and put a Tent into the Wound to prevent it from cloſing, and draw out the Remaining fragments after he has recruited his Strength.

If the Stone be ſo big that it cannot paſs through the Orifice, dilate the Wound.

This Operation is called the Greater *Apparatus*, or Cutting on the Staff.

The Leſſer Apparatus *in Men, or Cutting on the Gripe.*

This manner of Operation is called leſſer, becauſe it do's not require ſo many Inſtruments as the former. To perform this, put your forefinger into the *Anus*, to bring the Stone to the *Perinæum*; make your Inciſion on the Stone it ſelf on one ſide of the Suture, and extract it through the aperture with a Hook. This Operation takes place when the Stone is not too big, and you can bring it to the *Perinæum* with your finger.

The Way of cutting Women.

Put your forefinger and middle finger up the *Vaginæ*, or into the *Anus* in young Girls; with theſe two fingers bring the Stone to you, compreſſing the Bottom of the Belly with the other to. make it deſcend: Put a Hollow'd Probe or Director up the *Urethra*, which is to be held by ſome Aſſiſtant; then ſlide a Dilator on its Furrow, and taking out the Director, Dilate the *Urethra* without cutting at all, and ſo extract the Stone with the Hook or *Forceps*. You muſt not put the Dilator too far up the *Urethra*, becauſe the Neck of the Bladder is ſhort in Women, and by this means you may happen to lacerate the *Sphincter*, and ſo cauſe an involuntary efflux of Urine. This is called the leſſer *Apparatus* in Women.

The Greater Apparatus *in Women.*

The Patient being put into, and kept in the ſame poſture with (Men deſcribed before) Introduce the Conductors into the *Urethra*, and between them ſlide a Dilator, then withdraw the *Conductors* and ſo dilate, next introduce the *Forceps*, and drawing forth the Dilator, take hold of the Stone with it. If the Stone be too big to come forth, make a ſmall Inciſion to the Right and to the Left, to make way for it. Inſtead of the *Conductors*, you may uſe the Gorget, if you like it better.

The *Urethra* in Women dilates exceedingly, and it ſeldom happens that we are obliged to have recourſe to Inciſion. Beſides, Women are more rarely attacked with this Diſtemper than Men; becauſe their *Urethra* is Wider, Streighter and Shorter, and the Urine more eaſily drives away that Sand which is lodged in the Bladder.

The Succeſs of the Operation may be gueſſed at from the quiet repoſe which the Patient enjoys, the Freedom of Breathing, the Moiſture of the Tongue, no Immoderate Drowth, Pain ſcarce ſenſible, little or no Feaver, no Swelling in the Hypogaſtrick Region, and a Ceſſation of Inflammation on the fifth or ſixth Day.

Sometimes a Stone is voided out of the Bladder, and paſſes into the *Urethra*, where it lodges and obſtructs the Emiſſion of the Urine. In this caſe if the Stone be near the *Glans*, preſs that with your Finger, and if it do not eaſily come forth, bring it out with the Extractor, if both fail, make an Inciſion on the ſide of the *Urethra* to ſo take it out.

When the Stone is in the Neck of the Bladder, puſh it with the *Catheter*, or endeavour to bring it back by ſlipping the finger into the *Anus*.

When the Stone is in the *Urethra*, if it be ſmall, ſtop the paſſage with your fingers (compreſſing the Yard beyond the Stone) then blow into the *Urethra* to dilate it, and puſh the Stone forwards with your fingers, till you have brought it forth. This way ſucceeds better in young Children, than in Adults, their *Urethra* being more eaſily diſtended.

The Stone may ſometimes be drawn out by Suction, this ſucceeded well with Dr. *Muys*, who adviſed the Mother to ſuck the Yard of her Infant.

If a Stone be lodged in the *Urethra*, and cannot be got out by any of the ways above mentioned, draw the Skin

of the Prepuce upwards, and take the Yard between your fingers to hold the Stone firm, compreſſing it a little, and making the Inciſion on the Stone lengthways on the ſide of the Yard. When the Stone lies bare, preſs it out with your forefingers, or pick it out with the Extractor.

THE DRESSING. When the Patient is Cut, Apply a great Compreſs on the Wound, and let ſome Robuſt Fellow carry him to his Bed. If there be any fragments of the Stone remaining in the Bladder, or you have ground to think there are more Stones; put a Tent dipt in ſome Digeſtives into the Wound to prevent it from cloſing, and if there be a Flux of Blood, ſtop it with Reſtringents. If there be no Stone or Gravel remaining in the Bladder, put no Tent into the Wound, but a Pledget with ſome good Balſam, with an Emplaſter over that, and a Compreſs both in the form of a Horſe-ſhooe. The Dreſſing muſt be kept on with a Roller with four Tails or the double T ſuſpended with a Collar, and the Leggs below the Knee, bound together with a narrow Roller, to keep the Wound from gaping.

The Roller with four Tails is made with a piece of Linen Cloath three inches broad, and an Ell long; ſlit this lengthways at both ends to the middle, leaving between four and five inches in the middle undivided. Apply the plain or entire part on the Wound, and then croſs the two formoſt Tails, and faſten them to the Collar about the Ribs. (This Collar is a Band ſtitched at both ends, which is put about the Patients Neck, and hangs down to his Belly.) Then paſs the two other Tails through the Collar, and bringing them back faſten them behind.

The ⅄ or double T, is a Girth which goes round the Waſt, with two Straps in the midſt ſown at ſome ſmall diſtance from each other; apply the middle of the Girth behind, and tie its ends before, then bring the two Straps between the Leggs, croſſing them on the Wound, and tie them before to the Girth or Waſtband.

The Dreſſing for the Inciſion made on the Yard.

Apply a Pledgit dipt in ſome good Balſam, and over it an Emplaſter. The Bandage and all the reſt, is the ſame as in the *Phymoſis*.

THE CURE. We have obſerved before, that in caſe there be Reaſon to ſuſpect there is Gravel remaining in the Bladder, you muſt not inſtantly heal the Wound, but put a large Tent into it with ſome good Digeſtive, to give leave

leave to the Gravel to purge it ſelf through the Orifice. If the Wound be contus'd, you muſt Suppurate till a laudable Digeſtion appear, every day leſſening the Tent. But if after the Operation there be no Contuſion, it ſuffices to put in a Pledgit arm'd with ſome good Balſam, and Dreſs it twice every day, till it be perfectly cured. The Patient muſt be fed with good Broths and Gellies, and muſt not eat any thing Solid for fear of a Feaver, which would obſtruct the Coalition of the Wound.

To prevent the Stone from being reproduced in the Bladder, the following Precautions muſt be uſed. The Perſon who is cut muſt lead a Regular Life; that is, He muſt not eat to Exceſs, for fear of creating ill Juyces, the Stomach not being capable of good Digeſtion, when it is overcharged with Meat. He muſt eat Wheaten Bread well baked, for Rye Bread containing an Acidity, is apt to Coagulate the Humours, and produce the Stone. He muſt avoid all ſalt Meats, all ſorts of Ragouſts which ordinarily are high Seaſon'd: All theſe Aliments heat, and are apt to petrefie that Glairy Matter, which is lodged in the Kidneys and Bladder. Milk Meats, Old Cheeſe, Hard Eggs, Sallets, Unripe Fruits, create ill Humours, which being mixed with Acids, acquire a coagulating property. The Uſe of Heady Wines and Beer, is dangerous. *Geſner* has obſerved, that if you put Sand into Stale Beer, it forms a Stone. Muddy Waters, and Waters of melted Snow and Ice are very impure, and full of Bodies, which have a Coagulating property. Exceſſive Application of Mind, Debauches of Wine and Women, all violent Paſſions are very hurtful to Perſons who have any Diſpoſition to Gravel; all Exceſſes in any of theſe kinds ſharpen the Blood, and waſt its Unctuous and Balſamick part. Too long Repoſe is hurtful, becauſe the groſs Feculent Matter ſubſiding, and not being diſperſed by Motion is collected together, and ſoon coagulated by an Acid.

For theſe Reaſons the Patients Diet muſt conſiſt of ſuch Things as are ſweet and eaſie of Digeſtion, as Veal, Lamb, Fowl, *&c.* or Broths, in which the Cooling Plants are boyled, as *Succory*, *Sorrel*, *Parſly*, *Spinage*, or others of the like Nature.

White-wine boyled with a Moiety of Water, *&c.* Sleeping and Waking muſt be moderate. The Patient muſt not ſleep on his Back, for this poſture is Heating. The Body muſt be kept open with Clyſters, if Nature does not act her part,

and gentle Purges given at proper times, of *Whey*, *Manna* and *Caſſia*.

Thoſe who are ſubject to Nephritick Colicks, may be cured by Emollient and Lenitive Clyſters made with *Mallows*, *Marſh-mallows*, *Milk*, *Sugar*, and *Oyl of ſweet Almonds*. Theſe are Preparative to Diureticks, ſuch as Ptiſans made with *Salt-Peter* refined, ℥ß. Diſſolved in a Decoction of *Reſt Harrow*, and *Dogs Graſs*. There is not a more excellent Diuretick than *Turpentine*, ℥ß. made into a Pill. To harden it, it muſt be boiled in ſome Diuretick Liquor, as Turnep Water, and ſo made up. To the part affected, apply Fomentations. ℞. *Roots of Marſh-mallows*, ℥ß. *Mallows*, *Melilot*, *Chervil and Camomil together three Handfulls*, *Linſeed*, *Parſley Seed*, ā ℥i. Boil the Ingredients together, and apply the Cataplaſm to the Part.

Baths made with Emollient Herbs, are very uſeful in Nephritick Pains, and Broth with *Oyl of ſweet Almonds*, ℥i. given to the Patient in the Bath. You may likewiſe give *Turpentine Pills*, or a Dram of the Powder of *Millepedes*, both which are proper to expell Gravel by Urine.

If in Nephritick caſes the Patient Vomit, give him the following Powder. ℞. *Sperma Ceti*, *Crabs Eyes*, ℥ß. *Cinnabar of Antimony*, ℈i. *Volatil Salt of Amber* iv. gr. *Laudanum* gr. iß. *Torchiſc. Alkekengi with Opium* ℈ß. Mix theſe for four Doſes.

Mr. *Boyl* in Nephritick Pains, commends *Caſtile Soap diſſolved in old Oyl of Wallnuts*, adding *Oyl of Ginger* three or four drops. This is a good Diuretick.

REMARKS.

There is in the Hoſpital of *the Charity* at *Paris*, a Stone weighing 51 Ounces, taken out of the Bladder of a Prieſt after he was dead, who had been Cut to no purpoſe, the Stone being too large to be extracted.

There was found in the Bladder of a Certain *Engliſh* Knight, who dyed at 82 years of Age, a Stone which weighed 25 Ounces and a half, the Urine had formed a Channel in it, through which it paſſed into the *Urethra*. This Channel had one Hole in the place where the *Ureters* enter the Bladder, and another at the Bottom of the Stone.

Hildanus Centur. 1. *Obſ.* 69. relates the Hiſtory of a Young Fellow who had emitted by the Yard 300 Stones of different Colours, ſome as big as Nuts, others as large as Cheſtnuts

nuts. He voided all these in two years time with great Pain, accompanyed with Blood; This young Man dyed of the Plague.

The same Author relates, *Cent.* 4. *Obs.* 50. He had found the Bladder of a Man divided into two Bags, each Bag containing six Stones about the bigness of Galls.

In *Centur.* 4. *Obs.* 5. He mentions a Stone which he had taken out of the Bladder of a young Man of 20 years of Age, which weighed 22 Ounces. It seemed to consist of several small Stones cohering, and had the Figure of a Cupping-glass. The Patient dyed in the Hands of the Operator.

In *Centur.* 6. *Obs.* 57. He tells us he had a Stone by him, which he had extracted out of the *Scrotum*, which weighed 8 Drams when it was first taken out, but at present weighs no more than five.

In the *Miscellanea Curiosa*, *Obs.* 44. There is a History of a Man of 64 years of Age, tormented with a violent Pain in the *Ischium*; He had an *Asthma* to that degree, he could not breath except he kept his Head erect, had the Jaundice besides, and in fine dyed of these Distempers. Upon opening the Body, two Tubercles were found in the Lungs, and 72 Stones about the bigness of Peas, of a blackish, yellow Colour in the Gall-Bladder and *Porus Choledochus*. In the Gall-Bladder of a certain Count of 70 years of Age were found several Stones, the greatest of which weighed 14 Drams, and the least 4. In a Woman of 63 years of Age, the Gall-Bladder was filled with several greenish Flints, larger than Beans.

Five Stones, the least of which was as big as a Nut, were taken out of the Gall-Bladder of Pope *Urban* the VIII. *Borrichius* tells us, he had found in the Bladder of a Woman, above seventy Stones of an irregular Figure, soft to the touch, which melted in warm Water. *Helmont* relates, that he had found Stones in the Gall-Bladder of several Animals. *Bartholin. Cent.* 1. *Hist.* 34. tells us that a certain Person very much subject to Gravel, falling into a prodigious Sweat, evacuated a great quantity of small Sand that way.

In the *Miscellanea Curiosa*, *Obs.* 46. is an account published, of a certain Ox seeming to be more stupid than any of the Rest, inclining his Head to the Ground, often lying down, and nodding in a Paralytick Manner, who being observed to wast away, was killed by his owner. The Brain was found petrified, and as hard as Marble, all the remaining Part of his Body being sound. The Leanness

and Decay in this Animal, did doubtleſs proceed from a Defect in the Diſtribution of the Spirits from the Brain, to the ſeveral parts of the Body.

Obſ. 27. contains the Hiſtory of a Woman, who for ſeveral years being tormented with cruel Nephritick pains, made Urine ſo thick it that Roped, and ſometimes felt ſuch an extreme chillneſs, that ſtanding before a Violent Fire naked, ſhe could not perceive the leaſt Heat, though her Skin were ſcorched. This Woman dyed with exceſſive Pain, and her Kidneys were found petrefied, and as ſolid as Alabaſter.

Obſ. 65. A certain Perſon of 72 Years of Age, of a Phlegmatick Habit of Body, was attacked with a ſuffocative Catarrh, and a great Suppreſſion of Urine: A large Aperture was made in the Vein of the Arm, out of which ſix Ounces of Blood were drawn, together with which came out 4 ſmall Stones, which made ſo great a noiſe in falling into the Porringer, as to be heard by the ſtanders by, theſe were of a yellow Colour, a little inclining to Red, and of the ſame bigneſs with the Gravel uſually voided in Urine. The Patient was ſoon cured of his Catarrh; but the Difficulty of Urine remained, and ſoon after he dyed of an Apoplexy.

Obſerv. 66. Relates the Hiſtory of a Woman of 33 years of Age, of a Sanguine Complexion, who being near the time of her Delivery was ſuffocated with a Catarrh. In the inferior part of the Liver was found a great Abſceſs or Maſs of Matter contained in a *Cyſtis*, ſo hard and ſtrong, that it could not without great Difficulty be cut with a good Pair of Sciſſars. This was filled with a Black reddiſh Subſtance, very Glutinous, not unlike Birdlime. This Glew was ſo Tenacious, it was difficult to get it off from the Fingers. In the midſt of this was lodged a Stone, about the bigneſs of a Pullets Egg, which being divided in the midſt, ſparkled as if it had been filled with Nitre. This Stone was much harder on the Surface than within, and void of all perceptible Scent.

Obſervat. 107. Relates that a Widow of a certain Shoomaker, had for the ſpace of 16 years, a Stone in the left Kidney, who by the Torment which ſhe ſuffered, was waſted to that degree, ſhe ſeemed a living Skeleton. She had a great *Stupor* on her left Thigh. This Woman took every day for ſome time, a *Decoction of Speedwell* in great quantity. This innocent Remedy brought the Stone from the Kidneys into the Ureters; whilſt it was detained there, ſhe found the Pain intolerable, and expected nothing leſs than

than to be killed by it. She continued the Uſe of her Medical Drink in greater quantity, and ſo brought it down into the Bladder, and thence by the help of the ſame Drink and Fomentations, at length brought it quite forth.

CHAP. XIV.

Of the Punction *of the* Perinæum.

THIS Operation is an *Aperture made in the* Perinæum, *to let out the ſuppreſs'd Urine.*

THE CAUSE. The Suppreſſion proceeds from ſome great Inflammation, or ſome Carnoſity, Fungus, Schirrus, or Ulcer, which blocks up the *Urethra.*

THE SIGNS. There is great Pain and Inflammation in the *Perinæum*, the Urine is retained, and the *Catheter* will not paſs the Duct to let it out.

The Operation muſt only be undertaken when milder ways fail, ſuch as Injections, the *Catheter*, or Cataplaſms. In this caſe put the Patient into the ſame poſture as in Cutting for the Stone, and without uſing the *Catheter*, (for we ſuppoſe that will not enter into the Bladder.) Make an Aperture with a Lancet or an Inciſion Knife, large enough to put in a *Cannula*, whoſe extremity may paſs into the Bladder. This muſt be left in the Wound for the Urine to paſs through, till the Inflammation be over. After the *Cannula* is drawn out, dreſs the Wound.

THE DRESSING. This is exactly the ſame with that deſcribed in Cutting for the Stone.

THE CURE of the Inflammation of the *Perinæum*, conſiſts like others of the like kind in applying Diſcutients to the Part, taking Internally Volatil Medicines, *v. g.* ℞. *Carduus Water*, ℥i. *Water of Elder Flowers*, ℥ij. *Crabs Eyes*, ℥i. *Diaphoretick Antimony*, ℈ß. *Sperma Ceti*, ℈i. *Laudanum* gr. 11. *Sugar-candy*, ℥ij. of which Mixture the Patient at ſeveral times muſt take ſome Spoonfulls.

Cataplaſms are made of Roots of *Aſparagus*, *Bryony*, *Hemlock*, *Flowers of Chamomil and Elder*, with *Camphire* and *Sulphur*. Compreſſes dipt in *Spirit of Wine Camphorated*, may be applyed. If theſe prove ineffectual, ſuppurate the Wound with emollient Cataplaſms made with *Lily Roots*,

Bryony, *Marſh-mallows*. *Brank-urſin*, *Pellitory*, *Chervil*, *Mullin*, *Chamomil*, *Melilot*, *Figgs*, &c. After the Ingredients are boiled, pound them in a Mortar, adding *Oyl of Lilies* or *Roſes*, and apply the Cataplaſm hot to the Part.

When the Suppuration is over, cleanſe the Ulcer with ſome deterging Balſam. Sweeten the Blood with Volatil Medicines given internally, ſuch as *Diaphoretick Antimony*, *Crabs Eyes*, *Volatil Salt of Hartſhorn* and *Vipers*, and an infinity of others to be found in M. *L' Emery*, or other good Chymiſts. Theſe Volatils may be given together or ſeparately in ſome proper Vehicle, as *Carduus Water*, *v. g.* of the powder ʒß. in a Glaſs of the aforeſaid Water.

If the Ulcer be in the *Urethra*, which may be diſcovered by the Suppuration, make your injections of Mundifying Ingredients infuſed in Hot Wine.

REMARKS.

In the Chamber of *the Bleſſed Queen* in the *Hotel Dieu*, there was a Big-bellyed Woman ill of the Small Pox, her Fundament was rotted from the *Os Pubis*, to the *Os Sacrum*, notwithſtanding which, ſhe was Delivered of a living Child, who dyed ſome Hours after, as did the Mother not long after her Delivery.

Bartholin Cent. 2. *Hiſt.* 52. tells us that a Man of 49 years of Age, had a Suppreſſion of Urine cauſed by Straining in Mounting his Horſe, a Feaver enſued with a continual Hiccough, a Pain and Swelling in the Groin. Upon inſinuating a Pipe into the Bladder he Urined, the Swelling of the Belly ſunk, and the Pain was allayed; but the Pain ſometime after returning, the Patient dyed. Upon opening the Body, there appeared two Tubercles of the bigneſs and figure of the Teſticles, which perfectly ſtopt the Duct of the *Urethra*. Theſe in all points performed the Office of a Valve, opening from without inwards, if the *Cannula* were thruſt againſt them, but ſtopt the paſſage from within outwards. Theſe Tubercles conſiſted of a firm white Fleſh, without any Purulent Matter; The Right was larger and ſomething more brown than the Left. The lower part of the Bladder was a little Mortified, the Patient made a Purulent Water, and the *Colon* adhered ſtrictly to the *Peritonæum* on the right ſide.

CHAP.

CHAP. XV.

Of the Fiſtula in Ano.

THIS Operation *is an Inciſion made into the* Anus, *to lay open an Ulcer in that part.*

THE CAUSE. A Fiſtula is a *Callous, Sinuous, Deep Ulcer with a ſtreight Mouth or Entry, opening into a more Spacious Bottom.* Theſe Cavernous Ulcers full of Partitions, are formed by the ſharp and ſaline parts of the Blood.

The *immediate* Cauſes of *Fiſtulas* in this part, are *External* and *Internal.* The *External* are Contuſions, Impure Embraces, Falls, Leeches ill applyed, *&c.* all which obſtruct the Circulation, detain the Humours, and create an Abſceſs, apt to degenerate and become Fiſtulous. The *Internal* Cauſes are Abſceſſes proceeding from Obſtructions, Inflammations, Ulcers, Piles, *&c.* The *Anus* is more ſubject to *Fiſtula's*, than any other part in the whole Body. This proceeds from the great quantity of Fat, with which the *Inteſtinum Rectum* is loaded, from the Evacuation of the *Fæces* here (this being the common Sink, where all the Filth of the Body is brought down to be carryed off) from its continual Humidity, and numerous Veſſels, (as Branches of the Hypogaſtrick Arteries and Veins, a Branch of the *Aorta*, another of the inferior Meſenterick Artery, the Hæmorrhoidal Veins, the vaſt number of Lymphaticks;) and Laſtly, from its Glands which ſeparate a white, glairy, viſcous Liquor. Some or more of the Cauſes above mentioned, hapning to meet with a part thus diſpoſed, it is no wonder to find a *Fiſtula* ſoon formed.

Fiſtula's differ much, and are to be diſtinguiſhed by the following Marks.

THE SIGNS. If the Fiſtula be in the Fleſhy parts, the *Pus* is White, Turbid and Viſcous. If in the Nervous parts, the Patient has Acute and very Senſible Pains, and the Humour is Serous and Sharp. If it attack the Veins and Arteries, it works through them by its Acrimony, and the Matter which comes away, reſembles the Waſhings of Fleſh. If the *Fiſtula* emit a thin, clear, ſharp, Humour, it is a mark it has invaded the Bones, and they are corrupted. In this laſt Caſe the Calloſity is greater, which proceeds from the Exceſſive Acrimony and Saline parts, able to Corrode and Cariate

riate ſo ſolid a ſubſtance. How the Saline parts form a Calloſity, may be conceived by the like effect which Salt has, when ſtrewed upon Pork which it hardens, whilſt the Humidity of the Fleſh diſſolving it, its parts like ſo many ſtakes enter and hinder the Motion. This explication is plauſible enough, and may be admitted by thoſe who place the Hardneſs of Bodies in the Repoſe of their Parts.

Recent *Fiſtula's* in Perſons of a good Habit of Body, are curable if the part concern'd will admit the Application of proper Remedies. But when Inveterate or in ill Bodies, or invading parts neceſſary to ſupport Life, as the Bladder, Guts, *&c.* where no Application can be made, are deſperate.

Fiſtula's are of different ſorts; ſome pierce the Gut without any outward Orifice. Others open outwardly, without entring the *Inteſtinum Rectum.* Theſe two Species are termed *Incompleat.* Some open within and without the Body, and theſe are called *Compleat.* There are ſome which have divers Cancers, all opening into one Cavity.

If the *Fiſtula* pierces the Gut only, there is a ſmall Tumour and Inflammation Viſible, without the *Pus* flows out of the Gut, there is Pain, Excoriation, Itching, and a *Teneſmus* cauſed by the Acrimony of the Matter, which irritates the Part, and ſollicites the Patient to go to Stool without any neceſſity. If it open outwardly, the Orifice is diſcerned by the Eye, and the Probe. No *Pus* comes from the Gut, and none of the preceding Signs appear. The Sinuoſities and Caverns are found by the Probe, by the Pain and Matter of various Colour and Condition. From conſidering the Signs, we proceed to

The OPERATION.

The Operation is the ſame, of whatever Nature the *Fiſtula* be. Place the Patient on the brink of his Bed with his Thighs ſtradling; If the Fiſtula open outwardly, enlarge the Orifice to introduce the Inciſion-Knife with its Probe. This Knife muſt be crooked and ſlender, and the Probe Long, Pointed at the end, and made of well temper'd Metal, to prevent the Danger of its breaking in the Operation. Put the forefinger of the Left Hand up the *Anus*, introduce the Knife into the External Orifice of the *Fiſtula*, and when you feel the Point of the Probe on your Finger, perforate the Gut with it, and then draw one end of the Probe with your Finger, and the other with your Hand, ſo make the Inciſion quite through at one Slaſh. Obſerve before

before you uſe this Inſtrument, to have its Edge cover'd with a fine thin Silver Chape or Sheath, which keeps it from hurting the Patient when it is thruſt in, and is to be taken off when the Knife is in the Wound, before the Inciſion be made.

If the *Fiſtula* pierce the Gut only, and the Swelling, Pain, Inflammation, or other External Marks of the Bottom of the *Fiſtula*, are very remote from the *Anus*, forbear the Uſe of the Knife, which would make the Wound too large and painful, and make the Aperture with potential Cauteries only.

For this purpoſe lay an Emplaſter over the Bottom of the *Fiſtula* of the ſame length with the Orifice deſign'd, apply the Cauſtick bruiſed on the part, firſt wetting a little the Place, then cover it with another Emplaſter to keep it on the part. The lower perforated Emplaſter, prevents the Cauſtick from acting on the adjacent parts, or ſpreading farther than you deſign. The time of its lying on, muſt be proportioned to its Strength. After which the Eſcar is to be ſeparated with the Lancet, and the Operation performed after the manner above deſcribed. When the Operation is over, ſearch with your forefinger whether there be any Sinus's, which if you find, open with the Sciſſors, and cut the Communications; without which caution the Wound apparently cured, will infallibly Relapſe. Here you muſt be careful of cutting Arteries which may lie in the way; in caſe of ſuch accident, ſtop the Blood with *Lemeries*, Styptick Water, or ſome good Reſtringent Powders, of which you may find an infinity in Authors.

If any Surgeon in the Country ſhall be called to perform this Operation, unprovided with the Inſtrument deſcribed, he may uſe his Sciſſors in this manner. Let him take an Iron Wire ſharpned at the end, and paſs its point through the enlarged Orifice, and thruſt it into the Gut, having introduced his Forefinger into the *Anus*. Then let him draw the point outwards through the *Anus*, and when it is come far enough out, bring the Ends of the Wire together, and with the left Hand drawing the Fleſh to him, enter one Blade of the Sciſſors or the crooked Knife, and at once cut through all the Fleſh. This method is uſeful in defect of other Conveniences, or in caſe the *Fiſtula* lie ſo deep in the *Rectum*, you cannot without Difficulty introduce the Knife together with its Probe. In this Operation, you muſt be careful to avoid cutting the Sphincter quite through, leaſt the Patient ever after

ſuffer

ſuffer an involuntary emiſſion of the Excrement.

THE DRESSING. Fill the Wound with Doſſils arm'd with good Digeſtives, and ſo diſpos'd, that the Medicines may have their effects equally on all its Parts, over theſe lay Pledgits with more Digeſtives, and after the Cavity is filled, cover all with an Emplaſter, and over this lay a Triangular Compreſs, which muſt be of this Figure, that one ſide may paſs between the two Buttocks. The Dreſſings muſt be kept on by the Roller with four Tails faſtned to the Collar, or with the ſingle or double T. Theſe are the very ſame with thoſe uſed in the Operation of Cutting for the Stone, where the Reader will find them deſcribed, which we ſhall omit here to avoid unneceſſary Repetition.

THE CURE. Good Digeſtives muſt be apply'd twice a day, to remove all Calloſities. If theſe fail of effecting, lay a Cauſtick on the Indurations, and when the Digeſtives is laudable, mundifie the Ulcer after the uſual manner.

Fabricius Hildanus, Cent. 5. *Obſ.* 80. Relates a Cure of a *Fiſtula* ariſing from the ill managing a Tumour of the Parotid Gland. A certain Perſon had an Abſceſs under the right Ear, which by degrees degenerated into a *Fiſtula*, which had been three Years unſucceſsfully in the Hands of ſome Barbers, till He was called to it. He found it Cavernous with two *Sinus*'s at the leaſt under the skin; the firſt of theſe extended upwards towards the *Cranium*, dividing again into two other; the ſecond went downwards in its deſcent, following the Courſe of the Jugular Vein, all theſe Cavities were lined with a *Callus*. In the firſt place he preſcribed the Patient an Exact order of Living, purg'd him twice, conſumed the skin which covered the *Fiſtula* with a Cauſtick, haſtning the Separation of the Eſcar with *Baſilicon*. The Calloſities in the Bottom he likewiſe conſumed with another Cauſtick, with the Addition of his *Angelick Powder*. After theſe remov'd, he proceeded to Mundifie the Wound with the ſame Powder, which he Extolls for its wonderful Efficacy in conſuming ſuperfluous Fleſh, advancing the growth of the ſound, and procuring the Coalition of Wounds.

REMARKS.

M. A. Severinus in his Book de Chirurgia Efficaci, p. 2. c. 49. Relates the Hiſtory of a *Fiſtula* in the *Perinæum* of five Years ſtanding. And mentions another in the *Penis* with four tortuous

Sinus's

Sinus's, in which every Year a New Abſceſs was formed, creating great Pain and Difficulty of Urine.

CHAP. XVI.

Of the Operation of the Empyema.

THis Operation is an *Aperture made between the Ribs, to let out the Blood or Matter lodg'd in the Cavity of the Breaſt.* The word *Empyema* is ſometimes taken for a Collection of Matter it ſelf, and ſometime for the Operation made to emit it.

THE CAUSE. This Collection whatever the Matter be, ſometimes Stagnates between the *Pleura* and the Lungs, and ſometimes in the ſubſtance of the Lungs themſelves.

The Cauſes are *Internal* or *External*. The *Internal* ſometimes is an Abſceſs formed in the Duplicature of the *Pleura* or the Lungs, which coming to break, makes an Effuſion of Matter on the Diaphragm. The *External* Cauſe is frequently ſome Fall or the like Accident, which breaking the Veſſels ſpills a great quantity of Blood, and forms an Abſceſs. Sometimes the Lungs adhere ſo firmly to the *Pleura*, that the *Pus* do's not load the Diaphragm, in this Caſe there is no neceſſity to diſengage them, which can ſcarce be done without Laceration, ſince Life is not immediately concerned. Theſe generally proceed from ſome preceding Pleuriſie or Abſceſs in the Lungs.

The ſence of Authors about the Cauſes of a Pleuriſie differ very much; ſome pretend it is cauſed by an Ebullition of the Blood in the *Pleura*, Some think it is a Bilious Blood lodged in the Duplicature of that Membrane, which being ſtopt in its Courſe, putrefies and cauſes this Diſtemper. Others derive it from an Effuſion of Blood out of the Intercoſtal Veſſels, which being lodged in the Interſtices of the *Pleura*, Suppurates and is converted into *Pus*.

The moſt common occaſion of Pleuriſies, is the inconſiderate practice of ſome Perſons, who after violent Heats or Exerciſe, expoſe themſelves to a ſudden Change, by drinking Liquors cool'd with Ice, going into ſome Cellar or Vault, or other Subterraneous place, or perhaps opening their Boſom.

While

While the Body is heated the Pores are open, the Blood is in a great Agitation, which coming to diſſolve, and the ſerous Part to ſeparate from the Globular conſequently there follows a profuſe Sweating, and every Pore is filled with Moiſture, till the Chillneſs of the Ambient Air, a Draught of Cold Drink, or ſome other External Accident in a Moment ſtops the Evacuation, and the Matter ready to Tranſpire, is arreſted between the Duplicature of the *Pleura*, where it Stagnates, Corrupts, and by its Acidity, coagulates the Blood. Thoſe who indiſcretely keep their Breaſts open, before the Weather is very warm, are in danger of being attacked with Pleuriſies, for the ſharp Air ſoon piercing the Breaſt, which is a Thin part and not very Fleſhy, creates Obſtructions, and the Blood meeting with theſe impediments, which hinder the free Circulation and paſſage from the Arteries to the Veins, its Seroſity Tranſudes thro' the Arterial Coats, and the Blood and *Lympha* together Stagnating in the *Pleura*, putrefie and form a Suppuration.

Though Cold be the moſt frequent and general Cauſe of theſe Diſtempers; yet it is not always ſo, and we often find Men without overheating their Bodies, or uſing the leaſt violent Exerciſe, ſurprized with Pleuriſies. In this Caſe I conceive, they ariſe from ſome Nitrous or Acid Particles conveyed into the Body with the Aliment, or the Air in Reſpiration, which coagulate the Blood, and intercept its Motion. This Opinion is confirmed by an Obſervation, That Pleuriſies are very common after Earthquakes, Tremblings or other Agitations of the Ground, which throw up the Nitre, and infect the Air, and this doubtleſs is the Cauſe, why Epidemical Pleuriſies rage ſo much in Hot Countries, which more abound with Nitrous Salts, than colder Climates.

The ſame Cauſes which produce *Pus* in the *Pleura*, are likewiſe capable of producing an Abſceſs in the Lungs.

THE SIGNS which diſcover Blood or *Pus* lodged within the *Pleura*, are Inflammation, Acute Pain, or Weight, a ſmall continual Fever, a Hard, Cloſe, Deep Pulſe, frequent Rigors, a great Difficulty of Breathing, a Dry Cough, and an univerſal Diſorder of the Body: The Patient cannot lie on the ſound ſide, (becauſe the Matter contained in the *Pleura* draws it down,) grows ſuddenly Lean, and Waſts very much in a little time.

If

If the Abſceſs in the *Pleura* break, and the Matter be diſcharged on the Diaphragm, all theſe Symptoms vaniſh, and the Patient enjoys ſome eaſe for the preſent; but ſoon after He finds a difficulty of Breathing, a Weight on the Diaphragm, a Fluctuation, and Great Diſturbance: The Fever increaſes and becomes burning, the Pulſe riſes, and the Pain (which is not ſo acute as before) is felt under the ſhort Ribs: He cannot lie on the ſound ſide, becauſe the *Mediaſtinum* in that poſture is loaded with the *Pus*, which oppreſſes it, and cauſes great Pain: Sometimes the Spittle becomes Purulent, and Abſceſſes in the Liver enſue, in the ſame manner as after great Wounds of the Head. If the *Pus* be lodg'd on both ſides, the Patient cannot lie on either, but is forced to lie on his Back.

If there be *Pus* in the Subſtance of the Lungs, the Patient breaths with great Difficulty, finds a great Weight from the Compreſſion of the Matter, and a fixt Pain, (which laſt is uſual in Pleuriſies, as well as in this Caſe; but with this difference, that Pleuritick pains are ſharp and ſudden, and theſe not ſo vehement, and come gradually) the Fever is continual without any Remiſſion, and the Thirſt immoderate, the Spittle purulent, the Patients Mouth and Throat are dry, his Cheeks of a Florid Red colour, his Eyes ſunk in their Orbit, their lively Sparkling quite Extinguiſhed, his Nails reflected back, and his whole Body dry and emaciated.

If the Fever encreaſe, and the Patient grows delirous, If his Spittle is black, livid, or of the colour of dryed Leaves, the Symptoms are Mortal.

If the Abſceſs originally proceed from an Internal Cauſe, the Difficulty of Breathing is not ſo great. The Fever is continual accompanyed with frequent Rigors and Cold Sweats, from time to time: At firſt the Patient ſpits Blood, but afterwards a ſpumous Purulent Matter ſometimes Yellow, (which laſt is a preſage of Death) He is forced to lie on his Back, by reaſon of the Preſſure of the Matter, if he ſhould lie on the ſound ſide, and when he turns to lie on it, the Lungs preſs on the *Pleura*, which unavoidably cauſes Pain: The Eyes ſparkle at the firſt, but after ſome time loſe their Vivacity, and the Face is bloated.

There is no more certain ſign that any Wound pierces the Breaſt, than the noiſe which the Air makes in ruſhing out, and the Motion it gives the Flame of a Candle, applyed to it.

To ſearch the Wound, the Patient muſt be put in the ſame poſture he was in at the Time he received it; for the better introducing the Probe, and giving exit to the Matter. If the Wound penetrate the Lungs, the Blood is Frothy, and the noiſe of the Air is not ſo diſcernible, as in ſimple Wounds. The Probe piercing into the Breaſt, and the exit of the Air are undoubted Signs, there is a penetration of the Breaſt, but not that the Lungs are wounded, ſince the Air may ruſh out though theſe are entire; and therefore you muſt enquire for ſomething farther, on which you may ſafely rely. If a Wound of the Lungs be Superficial, the Patient feels leſs Pain lying on his Back, than on his Side; but if it be deep, and any of the Great Veſſels divided, it is the ſame in whatever Poſture he be. If you introduce your finger into the Wound ſome days after it is made, and find the Lungs adhere to the *Pleura* round the Wound, it is a ſign there is extravaſated Blood.

The Florid Red Colour of the Cheeks in an Abſceſs of the Lungs, ariſes from ſome parts of the Purulent Matter, which being abſorbed and mixed with the Blood, accelerate its motion in the numerous Blood-Veſſels of the Cheeks, which abound with minute Veins and Arteries, more than moſt other parts. The Vivacity and Sparkling of the Eyes, is deſtroy'd by the Sharp, Tartarous Salts, which which vitiate the Oleous and Balſamick part of the Blood; for the Crimſon Tincture of the Maſs, depends on the due Mixture of its Sulphurous parts; Beſides the Air entring the Apoſtemated Lungs is corrupted, and cannot impregnate it, as in a State of Health. The ſinking of the Eyes in their Orbit, proceeds from the general Emaciation of the Body. The turning back of the Nails happens, becauſe theſe being Productions of the Skin, and this only ſupplyed with a Serous Liquor deſtitute of Spirits, it decays, dries, ſhrinks, and by conſequence draws them back with it.

If theſe Signs proceed from a Wound not penetrating the Breaſt, they ceaſe in few Days upon Bleeding, and a good Digeſtion; but if the Lungs are corrupted, they continue and increaſe, and the ſame happens if the *Diaphragm* be loaded by any Extravaſated Matter.

The *Flatus* is no certain ſign that the Wound penetrates the Breaſt, and happens ſometimes in Wounds of other Parts.

Be not too haſty to proceed to the Operation, if the Oppreſſion be not very troubleſome.

The

The OPERATION.

When it is evident there is *Pus* lodged in the Cavity of the Breaſt, an Inciſion muſt be made for evacuating it; but it would be a very great Raſhneſs to attempt this, without firſt conſidering there are ſeveral Caſes in which it may be uſeleſs. If the Abſceſs be in the ſubſtance of the Lungs, no Aperture of the Breaſt can avail any thing towards the diſcharging of the Matter; on the contrary, if the Abſceſs be on the Surface of the Lungs, and preciſely in the place of their Adhæſion to the *Pleura* (which may be diſcovered by a conſtant and fixed Pain) there the Operation is abſolutely neceſſary.

If a Wound be made by a Thruſt, and happen to be low enough, or otherwiſe convenient for the diſcharging the Matter any farther, the Inciſion will be needleſs; ſince the extravaſated Blood may be evacuated through this Orifice, by placing the Patient in a proper Poſture, and dilating the Wound if neceſſary.

The place of perforating the Breaſt, is ſometimes in the Artiſts Choice, and ſometimes directed by Neceſſity. The *Place of Neceſſity* is where the Matter preſents it ſelf; as in Abſceſſes of the *Pleura*, or an Adheſion of the Lungs to it. The *Place of Choice*, is that which the Operator likes beſt, when no Circumſtances determine him more to one part, than another: Here the moſt proper Place is, between the third and fourth of the Baſtard Ribs, beginning to count from below upwards, about four fingers breadth below the point of the *Scapula*, and about the ſame diſtance from the Spine of the Back.

Before the Operation, enquire if the Patient do not feel Pain in ſome part of the Breaſt; if he has not been for ſome time paſt ſubject to Diſtempers of that Part, has not had a Pleuriſie, or the like; for in theſe Caſes the Diaphragm often adheres as high as the third or fourth Ribs, and to make a Perforation lower, would be to no effect.

For making the Operation; let the Patient ſit on his Bed, and Aſſiſtants be planted by to keep his Body firm; begin to count the Ribs from below upward, and when you are between the ſecond and third of the Baſtard Ribs, pinch up the Skin tranſverſely, and let one of the Aſſiſtants hold one end of the Folded Skin, and your ſelf the other with your left Hand; Then make your Inciſion about two Inches large on the Fold from above downwards, that is lengthways of the Body. Then cut the *Latiſſimus Dorſi* tranſverſely, for by any other

way of Section, the Fibres of this Muſcle cloſing, would ſtop the Orifice of the *Pleura*, and hinder the evacuation of the Matter. Then continue to cut through the Intercoſtal Muſcles. When you are come to the *Pleura*, cut through it with your Knife, guiding the Point with your Finger, leſt it enter too far, and wound the Lungs or Diaphragm, which ſometimes adhere to that Membrane. After the Aperture made, introduce your Finger to enlarge the Inciſion of the *Pleura*, and free the adhering Lungs, if no *Pus* appear; for if *Pus* come out freely, it is a ſign, as I noted before, that this adheſion is Natural.

For the forcing out the *Pus*, oblige the Patient to lie down, and cloſe his Mouth and Noſtrils. If the Lungs fill up the Orifice, and endeavour to get out; you muſt thruſt them back with a Blunt Hollow Probe with a Hole at each end, for the Matter to paſs through, or a Pipe adapted to the largeneſs of the Wound. If Flatuoſities happen, long Pipes are very proper, becauſe the Orifice of the Wound is ſo ſmall and deep, it would be difficult without theſe, to give vent to the impriſon'd Air. If you ſhould make uſe of the Probe to diſcover whether you have paſt through the *Pleura*, you may happen to ſeparate it from the Ribs, and make another Vacuity, in which the Blood being collected will create a new Abſceſs, wherefore it is better to forbear this Tryal. If it be blood which comes from the Wound, you may let out a greater quantity, than if it be *Pus*, the latter containing, according to common Opinion, more Spirits, and the Patient ſooner falling into a *Syncope*. Obſerve in dividing the Intercoſtal Muſcles, to make your Inciſion in the midſt between the Ribs, to prevent laying the Bones bare, which would leave behind it a Fiſtulous Ulcer.

THE DRESSING. You muſt begin here with putting in a Tent of Lint flat at the end, which enters the Wound, and Cupped or Headed at the other; This muſt be as little as poſſible, leaſt it offend the Lungs, and muſt be very ſoft leaſt it hurt the Ribs, and lay the Bone bare, which may cauſe an incurable *Fiſtula*. You muſt not forget to paſs a double Thread through the Tent, which may be faſtned round the Body, if you pleaſe to hinder it from getting into the Cavity of the Breaſt. Next fill the Wound with Doſſils arm'd with ſome good Digeſtives, lay on a Pledgit, then an Emplaſter, and over all a Compreſs dipt in ſome good Defenſative to prevent any Fluxion on the Part. The beſt Defenſatives are the *Styptick Waters*, or in defect of theſe *Oxy-*

crate

crate well heated. Theſe muſt be kept on with the Napkin. For this purpoſe fold your Napkin lengthways into three Plaits, Roll it at both ends, then apply its Middle upon the Wound, and beginning here, bring it round the Body pinning it at its Ends. The Napkin muſt be ſuſpended by the Scapular. The Way of making it is thus: Take a piece of Linen near ſix Inches broad, and long enough to reach from the Napkin before, to the ſame behind; then cut a Hole in the midſt lengthways, large enough for the Patient to thruſt his Head through, then draw it down on the Shoulders, and Pin one End to the Napkin before, and the other behind. Some chuſe to faſten the two ends of the Scapular between the Pleats of the Napkin; Some likewiſe cut the ends of the Napkin ſix Inches or more lengthwiſe, and croſs the cut Ends or Tails over one another.

THE CURE. The Patient muſt be kept lying on his Back, with his Head raiſed, and his Body half erect; he muſt be left undiſturb'd till he finds a new Matter, which requires the taking off the Dreſſings to give it vent. If the Lungs preſent themſelves and fill the Orifice, put them gently back with the long Pipe, ſo let the *Pus* diſcharge it ſelf through its Cavity, and after the Evacuation, proceed to the Uſe of good Detergents.

Blood comes away ordinarily the firſt three or four Days, next a Water for ſome Days more, and after this *Pus* which by degrees thickens. If this be thick to exceſs, evacuated with Difficulty, and the Patient ſenſible there is ſome ſtill remaining, Syringe the Wound with Vulnerary Injections made of the Decoctions of the *Birthworts*, *&c.* with *Aloes*, *Myrrh*, *Frankincenſe*, or any other proper Ingredients; correct the Intemperature of the Air with Fire brought to the Patients Bed-ſide, during the time of Dreſſing him, and keep the Wound no longer open than is neceſſary, becauſe the Air by its Acidity is apt to condenſe and coagulate the extravaſated Matter, and hinder its Evacuation. If the *Pus* be thick, or there happen to be a Mixture of Water, a *Decoction of Barley ſtrained with a little Honey of Roſes* is very good. If the Injections do not come away freely, make way for them with your Finger or the Pipe, or if the Lungs adhere, free them by introducing your Finger and turning it round. If the Blood be too Watry, and the Patient loaded with too great a quantity of Matter, take off the Dreſſings three or four times a Day. There is a Flux of Matter very often, which laſts for three or four Months; when you

obſerve nothing but *Pus* come from the Wound, you may Heal and Cicatrize it. When the Air acts on the Blood extravaſated in the Breaſt, it is very often Coagulated without being converted into *Pus*, and comes away in Clots. If the Lungs are wounded forbear Injections at firſt, at leaſt leave out *Aloes*, becauſe the Patient will be apt to bring them up thro' the Mouth. But after this is conſolidated, inject with *Tincture of Aloes*, *Wine* or *Vulnerary Decoctions*, *with Honey of Roſes* if the *Pus* be ſmall in Quantity. After a Thruſt with a Sword, if Blood come plentifully out, and in a day or two after none appear, you muſt endeavour to cloſe the Wound, the ſmall Veſſels only in all appearance being Hurt, which by degrees are Healed by the Glutinous Parts of the Maſs. If the Wounds penetrate on both ſides, or other occaſions require an Aperture, you muſt not leave both Orifices open at once, leaſt the Air entring on both ſides compreſs the Lungs, and Suffocate the Patient. In ſhort, all Wounds of the Breaſt are dangerous, Death is commonly the end, or if they happen to be cured, ſome *Phthiſis* or ſome lingring Diſtemper follows. Wounds of the Breaſt have ſometimes been fortunate to Perſons labouring under *Aſthma's*, or other Chronical Infirmities by opening a Way for applying Medicines to the Diſeaſed Parts.

Empyema's being uſually Conſequent on Diſtempers of the Breaſt, Pectoral Medicines conduce very much to their Cure; ſuch are theſe extracted from the Famous Mr. *Lemery*: *Sulphur drawn from Cinnabar of Antimony, from* 2 gr. *to* 8. *Oyl of Brick uſed externally*, *Flower of Sulphur from* 10 gr. *to* 30, *Magiſtery of Sulphur*, *from* 6 gr. *to* 16, *Balſam of Sulphur from* 1 *drop* to 6, *Sugar-candy*, *Laudanum*, *from* ½ *to* 2 gr. *Oyl of Nuts*. *Bugle in ſome Ptiſan*, *Roſe-Water from* ℥i. *to* ℥vi. *Flowers of Benzoin*, *from* gr. 2 *to* 5, *Mead*.

Riverius relates, *Cent.* 1. *Obſ.* 56. A young Fellow, a Shoomaker by Trade, of a Bilious Habit, was attacked with a Pleuriſie; he had been Bled, and divers Remedies uſed without Succeſs; the Fever continuing upon the fourth Day, to grow more violent than before, and the Pain of his Side encreaſing. After this he eat a whole Apple with a Dram of *Frankincenſe* in it, drinking after it, four Ounces of *Carduus* Water, covering himſelf well, and Sweating, which did not abate the Fever at that time, but Sweating again twice or thrice the next day, he recovered.

In

In *Cent.* 2. *Obſ.* 78. He relates, That a Maid of 25 years of Age very Bilious, had laboured for ſome Months under a Fluxion on the Lungs, attended with an inceſſant Cough, could not Sleep, had a great Pain in her Breaſt, a ſmall Fever, never went to Stool, was exceedingly Emaciated, and her Life deſpaired of. *Riverius* obſerving a great Heat in her Bowels, and a great Reſtriction of Body, preſcribed an Emollient Clyſter, and the loſing ſix Ounces of Blood. After this two Iſſues between the Shoulders, and the following Laxative Ptiſan to be continued for five Days. ℞. *Tamarinds* ℥ß. *Boyl theſe in Spring Water* ℔iij. *to* ij. *Infuſe in this Liquor firſt ſtrained and cool'd, Senna cleanſed, Coriander Seeds, Liquorice bruiſed,* ā ℥i. *Red Roſes,* ℥i. *Let the Patient take off this,* ℥iß. *each Morning about an Hour before eating.* By the Uſe of theſe ſlight things ſhe got up the fifth day, and followed her ordinary Affairs. But ſtill continuing bound and not ſleeping, he preſcribed her farther a Bolus of *Conſerve of Roſes,* ℥i. *Laudanum* gr. i. after which ſhe reſted four or five Hours, and continued to ſleep ſeveral whole Nights after, without any other Remedy whatever.

In *Cent.* 2. *Obſ.* 79. He tells us a Boy of 12 Years of Age was Pleuritick on the Right ſide, he bled him five times, preſcribed all Things uſually given in the like caſes, notwithſtanding which the Fever grew higher with great Reſtleſſneſs and Vehement Pain. The next day he ordered *Chimney Soot* well pulverized ℥ß. in *Carduus Water,* two Hours after the taking which all Symptoms ceaſed, and the Patient began to recover.

In *Cent.* 3. *Obſ.* 39. He tells us, that a Child of five years Old was attacked with a Pleuriſie, attended with an Acute Fever. He gave him the uſual Remedies for the ſpace of five Days, bleeding him ſeveral times, after this applying two Cupping-Glaſſes on the ſide affected, and Scarifying deep, from theſe Inciſions iſſued out a Sanies continually, after which the Fever and Pain ceaſed: he applyed Bete Leaves on the Scarifications, and the Flux of Sanies continued two Days longer; after this came forth a True *Pus,* and the Patient perfectly recovered.

In *Cent.* 4. *Obſ.* 39. He obſerves that all Pleuritick Patients who Vomit at firſt, are Cured.

Fab. Hildanus, Cent. 4. *Obſ.* 26. relates the Hiſtory of a Pleuriſie in a Perſon of 30 years of Age. In the firſt place, he preſcribed him a good *Regimen,* then a Clyſter, and Bled him in the Arm. To the ſide affected, he uſed Anodyne

Fomentations, and Internally Pectoral Medicines, with all other things uſual on the like occaſions. Upon the Fourth Day the Pain in his ſide ceaſed, and his expectoration was eaſie. The Seventh Day a great ſweat aroſe, and the Patient Recovered; But on the Tenth he was ſeized with a violent Fever, and Shaking, and dyed the thirteenth. *Hildanus* conjectures, the caſe of this Fatal Turn might be his exceſſive uſing the Privileges of Matrimony, being lately Marryed to a very Beautiful Woman. Upon this Occaſion he obſerves, How pernicious all Commerce with Women is in Acute Pains.

REMARKS.

Fabr. Hildanus, Cent. 2. *Obſ.* 26. relates, that a certain Perſon who had for many years been Aſthmatick, and had a Cough, dyed Emaciated to the higheſt Degree. Upon opening the Body, he found Obſtructions and Schirroſities in the *Liver*, Spleen, and other *Viſcera*, and in the Lungs a Hard, Rough Stone about the bigneſs of a Nut, incloſed in a Carnous Caſe. There were diverſe Tubercles along the branches of the *Aſpera Arteria* all Schirrous, without any Ulcer in the Lungs. He found two pound of Water in the *Pericardium*, and a great quantity in the Cavity of the Breaſt. He relates farther in the ſame Obſervation, That in opening of a Woman who dyed of a *Phthiſis*, he found a great quantity of Clotted Blood in the Lungs, beſides ſeveral ſmall Stones, and in opening the Body of a Man, he found diverſe Stones part black, and part white.

In *Cent.* 2. *Obſ.* 30. He ſays, he found ſome Fragments of the Lungs in the Urine of a Peaſant.

In the *Miſcellanea curioſa Obſ.* 41. There is a Relation of a certain Perſon of 36 Years of Age, naturally Hot, Dry and Phthiſical, who was found dead by his Wife's ſide. The preceding Day he had diſpatched all his ordinary Affairs. His Wife riſing in the Morning made the leaſt noiſe ſhe could, for fear of diſturbing him, imagining he was a ſleep; but wondring he did not come down after ſome time, went up and found him Dead. This Accident made a great Noiſe, and Phyſicians were ſent for to diſcover the Cauſe of his ſudden Death; in opening the Body, a large Swelling was found near the *Cartilago Arytenoides*, reſembling a Scrophulous Tumour; the Lungs were Ulcerated, filled with Purulent Matter, and great Part of their Subſtance waſted. Upon opening the *Trachea*, and examining the Swellings, it appeared to be a Portion of the Lungs, which being ſtopt there, had Suffocated the Patient. *Bartholin*

Bartholin Cent. 2. *Hiſt.* 56. relates that a certain Perſon dying of a Dropſie of the Breaſt, he found the two Lobes of the Lungs waſted, eſpecially the lower, nothing remaining beſides the Membrane which inveſts them, which was thrice as thick as the *Pericardium*, and extremely diſtended with the Water contained in it. The Heart was larger than was natural, flabby and filled with a black Blood.

CHAP. XVII.

Of the Extirpation of the Cancer.

THis Operation is *a Total Extirpation of that Raging Tumour, to free the Patient from all its miſchievous conſequences.*

THE CAUSE of this cruel Diſeaſe is a ſharp corroſive Blood or Lympha, which diſcharging it ſelf on ſome part, corrodes and tumefies it. If it invades the glandulous parts, it probably ariſes from a virulent *Lympha* becoming Corroſive, not unlike *Aqua Fortis*. If the Muſcular or Fleſhy Parts, it may be derived from the ſame ill qualities in the Blood.

The *Cancer* then is *a Round, Unequal, Livid, Painful Tumour, formed by ſome Sharp and Corroſive Humours.* In a *Cancer* the Tumefied Veins creep along the Surface of the Skin, reſembling the Claws of a Crab, from which appearance it derives its Name. The roundneſs proceeds from the Figure of the Glands, in which this Diſtemper is Seated, for the Flux of Humours diſtending them equally, they preſerve their Natural Figure. The Pain is more vehement in *Cancers* of the Glandulous Parts than others, becauſe theſe are furniſhed with an infinity of Nervous *Fibrill.e*, which are allowed by all Men to be the immediate Organ of Senſation. The *Lympha* contributes much to their encreaſe, the Glands being the Receptacles of that Liquor. When the moſt corroſive parts of the Blood eſcape out of the Veſſels, an Ulceration enſues, and the ſlow progreſs of this, proceeds from the difficulty which the parts of the Blood find in making their way by the ſlowneſs of the Circulation.

Some *Cancers* are *Internal*, others *External*, ſome *Ulcerated*, others not.

THE SIGNS. A Cancer often in its beginning, is not larger than a Pea, and grows at ſome times faſter, at others ſlower. At firſt it appears like a Little, Hard, Blackiſh Swelling, Troubleſome by its exceſſive itching. This Tumour after ſome time encreaſing, appears Hard, of a Leaden Colour and Livid. The Pain at firſt is Tolerable, but after becomes Violent, and when the Ulceration is compleated ſtrikes to the quick, and emits an intolerable ſtench. In its Progreſs when it is upon the point of Ulcerating, there is an Exceſſive Heat, with Pulſation and Pricking: The Neighbouring Veins are Swoln, filled with a black Blood, and creep along the Skin, reſembling the Claws of a Crab. Cancers ſeldom come of themſelves, but moſt commonly proceed from Schirrous or Scrophuious Tumours ill Cured. The Principal Seat of Cancers is in the Glandulous parts, eſpecially the Breaſts of Women, and ſometimes the Mouth, Noſe, Lips, *&c.* and the ſtrange aptneſs to degenerate, makes all Ulcers of theſe parts juſtly to be feared.

A *Cancer* not Ulcerated is called Occult, and Apparent if it be Ulcerated. The Signs which diſcover a *Cancer* is Ulcerating, are Acceſſion of Pain, Pulſation, an unuſual pricking, and an increaſe of the Heat and Swelling.

Occult *Cancers* are beſt left untoucht, for fear of irritating them, and haſtning the Patients End. *Cancers* in the Breaſts and Glandulous Parts are very dangerous; becauſe theſe parts are very ſenſible, and more ſuſceptible of ill impreſſions than others. This ariſes from the abundance of *Lympha* in them, which growing ſour, do's more miſchief than in parts where it is leſs plentiful. External *Cancers* are very difficultly medled with, Medicines being more apt to exaſperate, than heal them.

Before Operation, try if they are curable by General Methods, as obſerving a Good Diet, Mild, Repeated Purging and Bleeding. The Hæmorrhoidal Flux in Men, or the *Menſtrua* in Women, afford great Relief in this Diſeaſe: Sharp Medicines prepoſterouſly uſed, make the Diſeaſe incurable. The Cure of a *Cancer* not Ulcerated, muſt be attempted by Mild and Gentle Remedies; which cool, allay, diſſolve, and repel the Matter kindly, without raiſing any Fermentation; ſuch are *Mulberry*, *Plantane* and *Strawberry Waters*. If theſe prove ineffectual, then proceed to Operation.

The OPERATION.

When you firſt perceive in the Breaſt a Small, Hard, Permanent

manent Tumour in the Glandulous Parts, with other Symptoms of a growing *Cancer*, extirpate it. Place the Patient in a convenient Poſture, to lay open the Tumefied Gland, then free and take it off. If any Veſſels appear, which may give occaſion to fear a Hæmorrhage, tie theſe before you cut out the Tumour.

Tho' the *Cancer* extend over the whole Breaſt, yet if it be moveable without adheſion to the Ribs or *Sternum*, there is room to hope the Operation may be ſucceſsful, eſpecially if the Patient be young, and have as good Habit of Body.

To perform the Operation in this Caſe: The Patient being placed on his Back in his Bed, lift up the Arm on the ſame ſide the *Cancer*, and draw it back; then embrace the whole Breaſt with Pincers made of two half Creſcents, which may paſs over each other when the Pincers are ſhut. The Breaſt being in this manner held faſt, cut all off with a crooked Knife very ſharp and flat, beginning beneath, that the Mammary Veſſels may be divided laſt of all, for fear of a Flux of Blood. Take the whole Tumour off as quick as may be, cloſe to the Ribs. This is the manner of performing the Operation, when the *Cancer* is Ulcerated.

If the *Cancer* be not Ulcerated, make a Crucial Inciſion through the Skin, without entring the Glandulous Body; then ſeparate the four Flaps, and embrace the Carnous Tumour with the Pincers above deſcribed, and take it off with a ſharp Knife. If you are not provided with Pincers of this kind, Gripe the Tumour as well as you can in your Hand, or if you cannot conveniently do this, uſe a ſort of a Steel Fork to hold it, and ſo cut it off.

The Operation but a little while ſince, was commonly performed in the following manner, but it is too cruel. The Patient was laid on his Back on his Bed, The Surgeon raiſed the Arm on the ſame ſide with the *Cancer*, drawing it back to lay the Breaſt fairly open; then he paſſed a Needle with a very ſtrong Thread through the Baſis of the Breaſt, and another after the ſame manner to croſs with the former. Next he tyed the four Ends of the Thread together, and made a Knot, with which he drew the whole Breaſt up, and then cut all off as near the Ribs as poſſible, with a very ſharp Knife. He began to cut in the lower part of the Breaſt, ending at the Veſſels next the *Axillæ*, and leaving a ſmall Portion of Skin to cover the Veſſels, for the more eaſie ſtopping the Flux of Blood. This way of Operating

rating would ſtill be good, if we had not a more convenient way of apprehending the Breaſt, after the manner above deſcribed.

THE DRESSING. Gently compreſs the ſides of the extirpated Breaſt, to ſqueeze out the Blood and Humours, and lightly paſs over the Wound an Actual Cautery to diſperſe the Humours; and laſtly apply the Vitriol Button to ſtop the Flux of Blood: Take Vitriol groſly powder'd, wrap this in Tow, make it up round like a Button, and apply it to the Veſſels; lay over this Pledgits with a Reſtringent Powder, and cover them with a large Emplaſter with a Compreſs over, and keep all on with the Napkin and Scapular, deſcribed in the *Gaſtroraphia* and *Paracenteſis* of the Breaſt.

The following Bandage which retains the Name of *Heliodorus*, a *Greek* Phyſician who firſt invented it, is very convenient. Take a Linen Girth three inches broad, and of a competent length to go round the Body; ſow two Straps in the middle of this, about two inches or more diſtant from each other, and long enough to reach ſo as to be faſtned behind, apply the middle of the Girth on the Breaſt, and paſſing it round the Body; bring its ends as far back on the firſt Round as they will extend, and pin them there; then take up the two Straps, croſs them, paſs one over the Right, the other over the Left Shoulder, and faſten them behind to the Girth.

THE CURE. Apply Suppuratives to procure a good Digeſtion, to draw out the Corroſive Matter remaining in the Part, and hinder the *Cancer* from making farther Devaſtation; then Deterge well, and Cicatrize the Wound.

Before I leave this Subject; It is neceſſary to let the Reader know, ſome Authors have pretended to Cure Ulcerated *Cancers* by the uſe of Medicines only, without Manual Operation. Some aſſure us, this has been effected by the Application of red Snails, taken out of their Shells: Theſe, they tell us, leave a ſlime on the Part, their Bellies are corroded, they ſwell to a vaſt ſize, and at length burſt. If this Method fail of the intended Succeſs, it has this advantage, that it may be tryed with little Difficulty.

Riverius Obſ. 20. tells us, a young Surgeon, a Stranger, cured a *Cancer* beginning to Ulcerate in a Woman of 50 years of Age, with this Medicine: ℞. *Crude Sublimate*, ℥iij. *Sal Armoniack*, ℥ij. *Arſenick*, ℥i. *Aqua Fortis*, ℥i. *Put all theſe into an equal Weight of Diſtilled Vinegar; then Diſtill*

ſtill all over, till the remaining Matter obtain the conſiſtence of a Paſt. He bathed well the ſuffering Part with Rags ſoaked in Wine well warmed, rubbing it a little roughly to enrage it. Then he ſpread a little of his Compoſition on a Pledgit, ſix times leſs than the Tumour, applying this on the Part, and leaving it on for the ſpace of 24 Hours, in which time it made an Eſcar about ſix times as large as the Pledgit, and equal to the Tumour; after the Separation of which, he incarned and cicatrized the Wound. If any part of the Tumour remain'd, he conſumed it with *Burnt Alum* and *Præcipitate*, uſing only dry Lint for the Incarning it. The moſt obſervable Accidents in this Proceſs of Curing, were upon the Application of the Medicine; the Fever immediately grew higher, a Vomiting, Flux and Copious Urining enſued, which Symptoms laſted for two or three Days.

The ſame Author aſſures us, He had cured a *Cancer* of 13 years ſtanding, with very painful Carnoſities in an Ancient Woman, with ſo innocent a Medicine as *Night-ſhade*, *Plantain* and *Roſe-water*, with the addition of *Honey of Roſes*, expoſed for ſome time to the Sun, and then Applyed. The ſame he tells us, he had ſucceſsfully applyed in another Cancerous Ulcer in the Breaſt.

Fabricius Hildanus uſes the following Method; A certain Woman he tells us, had an Occult *Cancer* in her Breaſt, proceeding from Coagulated Milk. She having abundance of Milk, and happening to fall into a Suppreſſion of Urine, an Inflammation enſued, which curdled it. After the Inflammation was gone, there remained a Tubercle or ſmall Lump, about the bigneſs of a Bean; which being neglected, continued for the ſpace of 40 Years without any Pain, but the Woman growing Old and Decrepit, the Tumour began to encreaſe, grow Painful, and extend quite to and under the Arm-pit. Having procured her ſelf to be bled in the Arm, on the ſame ſide with this *Cancerous* Tumour, ſhe was deprived of the uſe of it. Our Author at the entreaty of this miſerable Woman, undertook a Palliative Cure. This he began with preſcribing her an exact Order of Living, then purging her with the following Potion. ℞ *Leaves of Sena*, ℥ij ß. *Dodder, Fumitory, Scabious, Harts-Tongue, of each* ½ *Handful, ſharp pointed Dock, Figwort, Polypody of the Oak, the inner Bark of Birch-root*, ā ℥ß. *Aniſeſeeds, ſweet Fenil-ſeeds*, ā ℥ij. *Liquorice*, ℥ß. *Boyl theſe Ingredients in Water, ſo that after ſtraining, there may remain* ℥viij. *Take a Moiety of this Liquour, to which add Syrup of Roſes with Rhubarb*,

Rhubarb, Agaric and Sena. Mix and make a Potion. This purged the Patient very gently. The next day he bled her about four Ounces in the Right Foot, and two days after purged her with the ſame Potion, with the addition of *Confection of Hameck*, ℥ij. *Compound Syrup of Roſes*, ℥i. Externally he uſed the following Liniment twice a Day to the Diſeaſed Part. ℞. *Oyl of Earthworms and Foxes*, ā ℥ij. *Yelks of Eggs, and Oyl of Sweet Almonds*, ℥iß. *Oyl of Scorpions*, ℥i. *Oyl of Spike*, ℥i. *Mix theſe for uſe.* Theſe Inunctions removed the Pain and Swelling in the Arm; the Breaſt continued in the ſame State, and ſhe felt no Pain. Notwithſtanding which, he applyed this Emplaſter. ℞. *Empl. Diapompholygos*, ℥ij. *Diapalma*, ℥i. *Calx of Lead waſhed, Calamy Stone*, ā ℥ß. *With a ſufficient quantity of Juice of Cranes Bill, make up an Emplaſter according to Art.*

REMARKS.

Fab. Hildanus, Cent. 3. *Obſ.* 88. Relates the Caſe of a Woman of 50 years of Age, who had a ſmall Turbercle on the right Nipple: Though this Tumour at firſt was hard, and ſomething troubleſom; yet being ſmall, and not very painful, ſhe would not ſuffer it to be medled with; But the Pain after ſome time encreaſing, ſhe called in a Surgeon, who applyed Emollient Medicines for the ſpace of a Month; the Pain increaſing, the Tumour broke, and a ſanious Bloody Matter iſſued out, reſembling Water after the waſhing of Fleſh. This Tumour at length became Painful, Stinking and Ulcerated, in ſo malignant a manner, that it corroded the Breaſt to the Ribs, and up to the Arm-pit. The Patient felt great Pain, Reſtleſſneſs, a conſtant *Nauſea*, and an Averſion to all ſorts of Aliments, and dyed in this Condition. This is an eminent Inſtance, how dangerous it is to meddle with Occult *Cancers.*

The ſame Author, *Cent.* 3. *Obſ.* 86. relates, that he had ſeen a young Man whoſe Tongue was ſo thick, and had ſo copious a Flux of Water in his Mouth, that he could not Articulately pronounce ſeveral Words. After ſome time a ſmall Tubercle appeared at the end of the Tongue, which grew to the bigneſs of a Vetch, and after of a Bean, then of a Cheſtnut, without the leaſt Pain; In fine, it encreaſed to the bigneſs of an Egg, remaining ſtill hard and indolent, till in the iſſue it killed the Patient.

CHAP.

CHAP. XVIII.

Of the Operation of the Bronchotomia.

THIS Operation is *an opening of the* Aſpera Arteria, *to give the Air liberty of entring the Lungs in Tumours of the Throat.*

THE CAUSES. Theſe Tumours ſometimes are occaſioned by external Hurts, ſtraining of the Voice, and long or much talking; ſometimes the Humours are ſoured by vehement Paſſion, and create an Inflammation of the *Larynx*. This Inflammation oppoſes the free Circulation of the Blood, and the Blood endeavouring to force a paſſage, encreaſes the Tenſion; and the part encreaſing in its Dimenſions, preſſes the *Aſpera Arteria*, and hinders the paſſage of the Air, and hence ſuffocation enſues.

The immediate Cauſe of Quinſies is Sharp, Vitiated, Lympha, which Corrodes, Inflames and Obſtructs the Membranes, Glands or Muſcles of the Throat. The Remote or Occaſional cauſes, are thoſe before mentioned, or ſome exceſſive ſharp or ſour Aliment, ſome Preternatural Subſtance ſwallowed by neglect, which being lodged in the Throat, by its Compreſſion, may cauſe Pain and Fluxion: Or laſtly, Mercurial Inunctions; which raiſing a Salivation by the Sharpneſs and Cauſtick quality of the *Serum*, is very apt to inflame their Parts. There are two ſorts of Quinſies, the *Genuine* and the *Spurious*; The *Genuine* is *attended with a Fever, and Difficulty of Breathing*, the Spurious or Baſtard is *a ſimple Inflammation of the Throat, without any other ill Accident.*

THE SIGNS which diſcover a Quinſie, is Breeding, are Difficulty of Swallowing, and Breathing, a Pain in the *Gula*, a great Heat and Burning in the Throat, a pain in ſtirring the Neck, a thick and glutinous Spit, and a vehement Head-ach. When the Quinſie is come to Perfection, the Patient finds a great difficulty in Breathing and Swallowing, Drinks, and all Liquid Aliments revert by the Noſe, the Tongue is flabby and ſoft, the *Fauces* are full of *Saliva*, Reſpiration is intercepted, and the Patient cannot lie down without danger of Suffocation. When the Quinſie is very great, the Tongue livid and loaded with a thick, ſaline, bitteriſh

teriſh Matter, the Face is ſwoln and inflamed, its Veins are Tumid, the Fever very acute, with an intolerable Thirſt, and a bitter Taſt in the Mouth; the Eyes ſtick out, and the Pulſe is wavering and ſmall.

Children are more ſubject to Diſtempers of this kind, than grown Perſons, their Throat being more clogged with Pituitous ſtuff. When they are attacked with this Diſtemper, their Countenance is pale, they complain of an external pain in the Neck, Hawk very much, and what they bring up, is thick and glutinous.

A Quinſie after a Fever, without any preceding Tumour in the Throat, is very dangerous; and the ſame Prognoſtick holds in all pain and difficulty of Breathing, without any apparent ſwelling in the Neck. If the Lungs are Inflamed in a Quinſie, the Patient moſt commonly dies upon the ſeventh Day, or if they exceed that, *Hippocrates* aſſures us an *Empyema* will certainly follow. The Diſtemper by its ſharp Nature cauſing a Peripneumony, which terminates in a Suppuration. Some Authors however deny any Quinſie ever to have had ſuch a *Criſis*. If the Fever does not abate, it is an ill ſign, and if the Patient foams at Mouth, Death is very near. If the internal Inflammation be communicated to the external Parts, and a ſwelling ariſes with a redneſs on the Breaſt, it is a very good ſign.

In a Quinſie, the Patient ſometimes can ſwallow Solids only, and not Liquids, and ſometimes Liquids, and not Solids. When the Inflammation is ſeated on the Palate, *Uvula*, and Neighbouring parts, he cannot ſwallow Solids, by reaſon of the pain they cauſe, and theſe parts are diſabled from thruſting them down the *Gula*; but Liquids make their way by their own weight. If the Inflammation be only on the Muſcles of the *Pharynx*, he ſwallows Solids more eaſily than Liquids; becauſe the Inflammation contracting the *Oeſophagus*. The Liquid Aliment being protruded by the Tongue, and finding no paſſage by their Fluidity, fly up on every ſide, and revert by the Noſe.

Tumours in the Throat muſt not be neglected, becauſe the *Lympha* ſtagnating there in the Veſſels and Glands, is very apt to breed a Quinſie by its ſharpneſs. This Diſtemper is not ſo dangerous in growing Children, as in Adult Perſons, it ordinarily proceeding in theſe from the Redundance of a Nutritious Juice, void of all Acrimony, but in Adults it is cauſed by an Acid, Vitious *Lympha*. If the Remedies preſcribed in this Diſtemper prove ineffectual, and the Patient

tient be in danger of Suffocation, you muſt proceed to the Operation.

The OPERATION.

This is not to be undertaken raſhly, and therefore firſt enquire whence the difficulty of Breathing proceeds, which if caus'd by an Inflammation of the Lungs, will fruſtrate your Hopes. It may happen the whole length of the *Aſpera Arteria* may be inflamed, and filled with a thick *Lympha*, in which caſe it is beſt to forbear making any Inciſion.

When you intend to perform the Operation, place the Patient in a Chair, or on his Bed, and plant a Servant behind to hold his Head, reſting on his Breaſt, being careful not to draw it too much back, leaſt he intercept the little Reſpiration remaining, and ſuffocate him before you can finiſh your Work. The moſt commodious and ſecure place to make the Aperture in, is about an inch below the Top of the *Larynx*, between the third and fourth Ring of the *Aſpera Arteria*. But in great Inflammations where the Muſcles are very much Tumefied, and it is difficult to count the Rings, you may make your Operation in the middle of the Windpipe. To make the Aperture, pinch the Skin up tranſverſly if poſſible, and make a Longitudinal Inciſion; then ſeparate with the point of your Inciſion Knife, as finely as poſſible the Bronchial Muſcles, and the *Sternohyoidei*, in doing which the Line which ſeparates them, will ſerve to guide you. When you have laid the *Aſpera Arteria* bare with a Lancet, divide the carnous Membrane which unites the Cartilaginous Rings, having an eſpecial care not to cut the Recurrent Nerves, which inevitably deſtroys the Voice, theſe Nerves furniſhing Spirits to the Muſcles of the Tongue. Avoid hurting the *Glandulæ Thyroidææ*, which are Receptacles of the *Lympha*, the effuſion of which, would make an inundation in the Wound, the Air being apt to corrupt the Cartilages.

The Lancet muſt be kept in a ſtreight Line with the Scales, by a Tape wrapt round to its Point; before you take out the Lancet, introduce a Probe into the Orifice, and on this ſide a ſhort, flat *Cannula* or Pipe, a little crooked at the end. This muſt not be thruſt too far, for fear of hurting the hinder part of the *Aſpera Arteria*, and cauſing a Cough. The Pipe muſt have two Rings to paſs Ribbons thro', which are to be ty'd about the Neck, but not too ſtrait, for fear of choaking the Patient; leave the Pipe in the Wound

Wound till the Inflammation be over. You muſt not apply any Tow to the end of the Pipe, becauſe the Inciſion is made for the free paſſage of the Air; beſides there is danger ſome part of it may be ſucked through the Pipe, and ſuffocate the Patient. To take off the chillneſs of the Air, before it enters the Lungs, keep a good Fire conſtantly in the Chamber, or if the Party be not in a condition to bear this Expence, bring a Chafingdiſh of Coals to his Bed, and draw the Curtains. When you perceive the Air recovers its Natural paſſage by the Mouth, then take out the Pipe and dreſs the Wound.

THE DRESSING. Bring the Lips of the Wound even together, which is eaſily done with a ſmall Fillet, lay on the Wound a Pledgit arm'd with ſome good Balſam. The beſt Application to ſimple Wounds not contus'd which admit of a prompt Reunion, is a Pledgit dipt in ſome Styptick Water. This is the celebrated Balſam which Mountebanks make ſo great a ſtir about, that with which they cure ſo ſpeedily the Cuts they ſometimes make upon the Stage, to give the gazing Multitude a proof of their rare Skill.

After the Lips of the Wound are brought together, keep them cloſe with the uniting Bandage. To make this, take a Fillet about two inches and a half broad, and an Ell long, ſlit a Hole in the midſt of it lengthways, more than two inches long, rub it at both ends, and paſs one end or head through the Hole in the midſt, put the Fillet about the Neck, apply the ſlit on the Wound, and draw the two ends or heads to keep the Lips of the Wound together, being careful not to ſtraiten it too much; for fear of inflaming the ſuffering part; Then bring the ends of the Fillet behind, and continue to make as many rounds about the part, as the length of the Fillet will admit of, pinning it where it ends.

THE CURE. The Patient muſt be fed with good Nouriſhing Liquids; for all ſolids in Deglution, are apt to compreſs the *Aſpera Arteria*, and put it into ſome Motion, which obſtructs the Reunion. If you perceive the Wound is inclined to Suppurate, take off the Dreſſings, and put a little Balſam under the ordinary Bandage; but if no ſigns of Suppuration appear, let the Dreſſing remain untoucht, till the Coalition be perfected. For ſimple Wounds, often when no Styptick Water is applyed, are cured without Suppuration.

When

When Quinſies are curable without Manual Operation, the Method of Treating them is as follows. The Patient muſt be confined to a Regular Diet; for Abſtemiouſneſs and ſpare feeding, are uſeful in all Inflammations whatever. We may account theſe in effect a perpetual Bleeding, ſince the Blood not being ſupplyed in proportion to its expence in Tranſpiration, muſt needs waſt. His Chamber muſt be kept moderately warm; both extremes of Heat and Cold being equally miſchievous: An Exceſs in the firſt putting the Blood into a violent Agitation, neceſſarily heightens the Inflammation; on the other hand an Exceſs in the latter, produces the ſame effect by obſtructing the Circulation, and hindering the Reflux of the Blood in the Veins. I Aſſign the Arteries as the Channels which convey the Matter of obſtructions, becauſe theſe diſcharge into the parts the Blood forced through them with great impetuoſity, by the contraction of the Heart, the Veins being wholly calm, and without Pulſation. The moſt commodious Poſture of Body is erect; becauſe when it is bended, the Veſſels are preſt together, the Circulation is leſs free, and the Air do's not ſo eaſily enter the Branches of the *Trachea*.

If the Patient cannot ſwallow Liquids, let him remain for ſome time without Aliment, rather than do any Violence to the ſuffering part. The leſs he eats, the more ſpeedy his Cure will be; Men may ſubſiſt for ſeveral Days without Food, eſpecially in Acute Diſtempers. The Want of ſleep, which is a Symptom frequently attending Quinſies, is miſchievous, continual Waking, being apt to inflame the Blood. To remedy this, endeavour to procure ſleep by Somniferous Emulſions made with the four *cold Seeds*, and *white Poppy Seed in Elder Water*: Let a Glaſs of this be taken going to Reſt, keeping the Mind Serene, and free from all diſturbing Paſſions. In danger of a Suffocation, bleed the Patient inſtantly in the Jugular Veins; nothing can diſcharge the Superior parts more immediately or effectually, than an Aperture of theſe Veſſels; but here obſerve not to hazard ſtrangling him with a Ligature about the Neck, which ſome indiſcreetly make. To prevent this, compreſs the Neck on the ſide and behind with a Fillet, without paſſing over the *Aſpera Arteria*, this Ligature is ſufficient to tumifie the Veſſels. If for any Reaſon the Patient cannot endure Bleeding, apply Cupping-Glaſſes to the Thighs, to determine the Blood to the inferior parts.

Clyſters are to be frequently given; Theſe may be made with the Decoction of *Mallows*, *Marſh-mallows*, *Brank-Urſine*, *Chamomil*, with the addition of *Honey of Mercury*, ℥i. *the Yelk of an Egg*, *Oyl of Lillies*, ℥i. *Nitre refined*, ℈i. To all his Liquid Aliments, add *Oyl of ſweet Almonds*, ℥i. *Cream of Tartar*, ℥i.

This Gargariſm is good in Quinſies. ℞. *Water of Elder Flowers*, ℥ij. *Water of Plantain*, ℥i. *Spirit of Wine*, ʒvi. *Spirit of Sal Armoniack* 20 *drops*, *Mix theſe*, *and Gargle the Patients Mouth*. Or, ℞. *Decoction of Elder Flowers*, ℥viij. *Spirit of Wine*, ℥ij. *Honey of Roſes*, ℥ß. let the Patient gargle his Throat with this Mixture, or if the Inflammation of the Muſcles make him incapable of doing this, let him retain the Liquor in his Mouth, frequently ſpitting it out and renewing it.

Externally apply Diſcutient Remedies to the Throat, the choiceſt of which are Volatil and Spirituous Liquids, ſuch as *Spirit of Wine Camphorated*, *Volatil Salt of Urine*, diſſolved in a little *Elder Water*. Emollient Cataplaſms have a very good effect, to make theſe: ℞. *Flowers of Scabious*, *Mallows*, *Chamomil and Melilot*, ā *one handful*, *Hemlock half a Handful*, *Liquorice*, ℥i. Album Græcum ℥i. *Boyl all in Milk*, *and then apply the Cataplaſm*. Or, ℞. *Crumbs of White Bread a Handful*, *Roots of* Althæa, *Bulbous Roots of Lillies* ā. ℥i. *Linſeed*, ʒvi. *Fenugril*, ℥ß. *Boyl all the Ingredients in Milk*, *and ſo paſs them through a Strainer*: Add *in the Straining*, *Oyl of Sweet Almonds*, *Oyl of Lillies*, ā ʒvi. *Freſh Butter*, ℥ß. *Saffron*, ℥i. *the Yelk of two Eggs*. Cataplaſms made of *Swallows Neſts* are excellent, becauſe theſe as well as all Animals Dungs, abound with Nitrous Salts. All theſe enumerated Remedies, together with all proper Emplaſters promote Suppuration; and therefore aſſiſt in removing the Obſtruent Matter. After Suppuration, deterge the Wound with a *Decoction of Barley*, and *Honey of Roſes*, adding if neceſſity require, a little *Spirit of Salt*.

Baſtard Quinſies caus'd by a thick, glutinous *Lympha* clogging the Throat, may be cured with a Gargariſm made of the *Decoction of Sage and Mallows*, ā one Handful in a Quart of *White-wine*, till it be reduced to a Pint, ſtraining the Liquor, and diſſolving a little *Sal Armoniack* in it.

Sudorificks are very good in this Diſtemper; for Inſtance, *Powder of Vipers*, *Diaphoretick Antimony*, ā *gr.* xv. taken in a Glaſs of *Carduus Water*, the Patient being well covered and Sweating after it. Outwardly *Diachylon* and Vigo's

Vigo's *Emplaſter* are good; Liniments may be made of *Oyl of ſweet Almonds, Marjoran, Mint*, applyed warm to the part affected.

If theſe Glandulous Tumours are not curable by Diſcutients, you muſt have Recourſe to Maturating Medicines, to procure Suppuration, and break the Abſceſs.

REMARKS.

Fabricius Hildanus, Cent.3.Obſ.27. relates the Caſe of a very Ancient Man, who had a Quinſie after a Dyſentery of three Months continuance, which he conjectures was cauſed by the Matter of thoſe Puſtles, which ordinarily appear on the Lips, being detained in the Throat, and creating a great Inflammation there. The ſame Author relates, *Cent. 6. Obſ.* 15. He had ſeen a great Quinſie proceeding from the Application of Pepper, in a Relaxation of the *Uvula*.

CHAP. XXIV.

Of Bleeding.

BLeeding is *the dextrous opening a Vein or Artery, to extract a certain quantity of Blood*, in order to preſerve Health, cure ſome Diſtemper, or at leaſt give Relief to the Patient.

THE CAUSE. Bleeding is commonly required in Intermitting, Continual, Malignant and Spotted Fevers. In violent Pains, Apoplexies, Quinſies, Inflammation of the Lungs, Pleuriſies, *Aſthma's*, and all Diſeaſes ariſing from Obſtructions, or attended with Sanguineous Eruptions on the Skin, as the Meazles, Small Pox, all Ebullitions of the Blood, Boils, Carbuncles and *Eryſipelas*'s. It is very ſerviceable in Women with Child, to prevent Flooding and Abortion, and in their Labour to facilitate and advance the Birth. It conduces very much to the ſpeedy Cure of Abſceſſes, Wounds, Ulcers, Fractures and Diſlocations, to divert all Defluxions on the Wounded Part, and prevent all ill Accidents, which ordinarily attend theſe caſes. Bleeding is likewiſe very much uſed in difficulty of Breathing, and all Repletion, *&c.*

THE SIGNS which indicate Bleeding, are the ſame with the Cauſes above recited.

The OPERATION.

Before this Operation be preſcribed or performed, all Circumſtances ought to be conſidered, *viz.* the Nature of the Diſtemper, the Patients Strength, Age, Complexion and Sex, the Seaſon, Climate, *&c.*

Great Diſeaſes require large Evacuations, milder yield to leſs. As for Age, bleeding is convenient at all times, if the Diſeaſe be preſſing. *M. Patin* bled a Child within three days after it was born, who lived after to a very great Age. If neceſſity require, fear not to bleed Ancient People, they not being exempted from a Multitude of Diſeaſes, whoſe progreſs cannot be checked by any other way: But in Perſons between fifteen and ſixty years of Age, you may bleed boldly, having nothing to fear. Much greater heed is to be taken to the Patients Strength, than his Age; for if his Strength be quite ſpent, though his Diſtemper ſeem to plead very much for bleeding, you muſt forbear, becauſe in this Caſe, it would throw him into extreme danger of his Life. Drunken Men muſt not be bled, becauſe the Stomach being overcharged, ſtands in need of all its Heats to perform Digeſtion. Perſons who have undergone a long Abſtinence, are not proper Subjects to bleed, the Refraining from eating being a gradual and conſtant expence of blood. *Guido de Cauliaco* pretends, that in ſuch Bodies as are ſoft, lax, thin and weak, ought ſeldom to bleed; but ſuch as are fleſhy, firm and ſound, who have large and ample Veins, may bear a more frequent Repetition of it. Heavy Bodies which abound with groſs Humours, more eaſily ſuſtain frequent bleeding, than Bilious Perſons whoſe Humours are more ſubtil and fine, the blood being a ſort of check to the Bile. I do not think theſe Rules are infallible, and always to be obſerved, ſince Bilious Perſons are very ſubject to *Eryſipelas's*, Efferveſcences of blood, Inflammations, and other Indiſpoſitions, which oblige them to have Recourſe to Bleeding. Thoſe who feed on Meats which breed Copious blood; ſuch as Bread, and Fleſh Meats, may bear more frequent bleeding, than Perſons who uſe a leſs nouriſhing Diet. Marryed Men who have craving Wives, muſt not bleed often; the great Conſumption of Spirits in theſe Men, aſſiſted by the Exhauſtion of their blood, would infallibly throw them into an extreme Weakneſs. Perſons naturally Lean, bear bleeding better than thoſe whoſe Leanneſs proceeds from Labour, Abſtinence, Want of Sleep, or long Diſtempers. *Celſus* is

of

of Opinion, that Fat and full Bodies beſt of all bear bleeding, and that it is healthy for them. Women ought not to bleed ſo often as Men: their Bodies being more tender, lax, delicate and ſoft than Men, and by conſequence more porous and perſpirable, not to mention thoſe Monthly Evacuations of blood, which excuſe them from this Operation.

Bleeding may be practiſed at all Times, if neceſſity urge it. Regard is had to the properneſs of the Seaſon only in bleeding by way of Prevention. In this Caſe the Spring is preferable to all the other parts of the Year; becauſe the Weather growing Warm ſtirs and ferments the Blood. The Autumn is not improper, its beginning uſually proving temperate. This bleeding for prevention, is by no means to be allowed of in very hot or very cold Weather. Both theſe extremes are equally bad, in the firſt all farther Evacuations encreaſe the expence of Spirits, and in the laſt leſſen the Natural Warmth, and leave Men unable to bear the Rigour of the Seaſon. If it ſhall be requiſite to bleed in exceſſive hot Weather, chuſe ſome Day Overcaſt or Rainy, becauſe the Diſſipation of the Spirits is not ſo great at ſuch times. Bleeding in the Morning, is better than any other part of the Day, eſpecially in Mechanicks and Labouring Men; becauſe the Reparation of the Spirits by the Preceding Nights Sleep, put the Patient in a condition to bear the Operation. If any Buſineſs or Accident hinders bleeding at that time, defer it till Night going to Bed, the Repoſe of the Night, ſoon giving the blood opportunity of reſuming its ordinary Courſe. Perſons uſually bleeding at certain times, muſt continue this Cuſtom, the Omiſſion of which, will certainly endanger a loſs of Health.

Hippocrates forbids bleeding in Big-bellyed Women; for fear of Abortions. He tells us, Sect. 5. Aphor. 31. *A Big-bellyed Woman if ſhe be bled Miſcarries, if the* Fœtus *be very far advanced.* The Veneration paid to this great Man, muſt not oblige Phyſicians to follow his Sentiments to the Letter. Experience ſhews, ſeveral Women with Child have been ſaved by Bleeding, and that very Copious too; for more ample Account of this, I ſhall refer the Reader to the Remarks on Deliveries, where is related the Hiſtory of a Woman, who was bled eight and forty times during her going with Child, to free her from a Cruel Oppreſſion, which threatned her with Suffocation, notwithſtanding which, ſhe was delivered of a living Child. However this Famous in-

ſtance muſt not be abuſed, to encourage the too bold uſe of the Lancet in theſe Caſes. Bleeding in Women firſt with Child is dangerous; becauſe the *Placenta* not adhering firmly to the *Uterus* in the beginning ſeparates, the Blood is the Life of the Animal, decays the Conſtitution, and cauſes an Abortion: But if a Woman have a great Repletion, and her Veſſels be overcharged with Blood, an Evacuation is neceſſary to prevent ill Accidents.

The inconveniences which uſually require bleeding in Big-bellied Women are Laſſitude, Heavineſs of Body, Colick Pains, Difficulty of Breathing, Vomiting, Flux of Blood from the Noſe or Womb, Varicoſe ſwellings of the Legs, obſtinate pain in the Teeth, Falls, violent Commotions or Diſturbances of Mind, all which put the Blood and Spiris into Diſorder. But here it is ever to be obſerved, that in bleeding Big-bellyed Women, the Evacuation muſt not be exceeding large, upon any pretence whatever, for fear of a *Syncope* and Abortion.

Women with Child are commonly bled in the ſeventh and ninth Month, and ſometimes there is a neceſſity of bleeding them in their Labour, to facilitate their Delivery. Maids muſt never be bled, without firſt enquiring, if they have their Courſes on them. Young Girls who never had, and are now of an Age proper to expect their Courſes, muſt not be bled. Bleeding in this critical Juncture, eſpecially in the Arm, unavoidably defers the Evacuation, and perhaps may endanger the Patient's Life. Young unmarryed Women, ought not to be clandeſtinely bled in the Houſe where they live, without the Knowledge of the Family: If ſuch Perſon come to a Surgeons Houſe, and deſire to be bled, upon pretence of preventing ſome Diſtemper; it I confeſs is ſomething a Nice caſe, for if you bleed her never ſo little, if ſhe apprehends her ſelf to be with Child, ſhe may unbind her Arm, and make as great an Evacuation as ſhe pleaſes.

The moſt General Rule in reſpect of bleeding is, never to have recourſe to it without neceſſity; for the blood is the Life of the Animal; In ſhort, if it were poſſible to refrain all together, it would be beſt for, as *Fernelius* ſets it forth; it waſts the Blood and Spirits, decays the Conſtitution, precipitates thoſe who uſe it into an untimely old Age, and leaves the Body ſubject to numerous Infirmities, as Dropſies, Gout, *Tremors* and Palſies. There is a pernicious Opinion prevailing amongſt ſome People, that the

the firſt bleeding certainly ſaves the Patient's Life, upon which fooliſh Confidence, many People deferring this Remedy to Extremity, have periſhed.

Bleeding is to be avoided after remarkable *Criſes*, whether by Vomiting, Fluxes of the Belly or Urine, Voiding of Blood, Defluxions or Abſceſſes, becauſe theſe Evacuations weaken the Patient. Bleeding muſt be forborn, or at leaſt very rarely uſed in Dropſical Patients, and thoſe who have *Tromors*, or Perſons Emaciated and worn out with long Illneſs. It is not a proper time to bleed immediately after Meals (becauſe this obſtructs Digeſtion, and the Patient vomits up his Meat) nor immediately after any violent Exerciſe, when the Spirits are ſpent; nor in decayed Stomachs, where the loſs of Blood muſt infallibly encreaſe the Deficiency of the Spirits; nor in the firſt attacks or encreaſe of a Fever, the Patient being at that time unable to ſuſtain it.

Bleeding is a proper Remedy in the beginning of hot Abſceſſes, to leſſen the Matter which feeds them. It is of wonderful uſe at firſt in great Wounds, to Anticipate Inflammations, Fevers, Fluxion, and the ill Accidents uſually attending them, and for the ſame Reaſons, it is exceeding ſerviceable in all Fractures and Diſlocations of the Bones; But in all theſe caſes it ought to be moderate.

Of the Veins uſually opened.

The Arteries are diſtinguiſhed from the Veins by their Beating, whereas the Veins have no ſenſible Motion. The Blood in the Arteries, is of a more lively Florid Scarlet colour, more Subtil and Spirituous than that of the Veins; it ſprings by repeated Jets, which the Venal Blood do's not. The Arteries lie more deeply conceal'd in the Part, and the Veins more ſhallow and ſuperficial.

The Veins may be opened without any danger, if nothing be hurt beſides the Veſſels; but the Punction of the Arteries is ever attended with troubleſom Accidents, as Aneuriſms, Difficulty of ſtopping the Blood, and Death after, if theſe Swellings by neglect, or ill management degenerate and gangrene. The pricking of an Artery which lies deep, is ſtill more dangerous, becauſe no Ligature or Reſtringent Remedies can be applyed.

The Vein running through the middle of the Forehead, is called the Frontal Vein, or *Vena præparans*. *Hippocrates* directs the opening this Vein in pains of the hinder part of the Head, and at preſent it is practiſed in inveterate Pains of

that Part, whereever they reſide. In the ſame caſe the Temporal Arteries are ſometimes opened: Theſe Arteries alone can be opened, becauſe they are ſmall, and may be compreſſed with a Boulſter and Bandage; This advantage they receive from running over the Bone, which with the External Applications, compoſe a double Compreſs.

The Veins in the greater Angle of the Eye, are opened to prevent their Inflammation; and the Veins between the Cartilages of the Noſe, to take off the Copper Colour, and other Deformities in the Skin of the Face. The opening of the Veins on each ſide the *Frænum* of the Tongue, commonly called *Venæ Ranulares*, is practiſed in Inflammations of the Throat, and Pains of the Teeth, when the uſual Remedies fail. Bleeding in the Jugulars, is very effectual to prevent all Quinſies, Apoplexies, and all ſtubborn Diſtempers of the Head, eſpecially Inflammations of the Eyes.

There are four Veins in the Arm, in which it is common to let Blood, the *Cephalick*, *Median*, *Baſilick* and *Cubital*. The Firſt is in the upper and external part of the foreſide of the Arm, near the bending of the Elbow. The *Baſilick* is a little lower, and the *Cubital* at the bottom of the Arm on the Bone of the Cubit, or near it. When the Veſſels lie deep, and cannot be opened, there appear on the inner part of the foreſide of the Arm, from the Elbow to the Wriſt, ſeveral communicating Branches, which convey the Blood from one to the other, and theſe may be opened in ſtead of the principal Veins. On the Hand are two Veins, one between the Thumb and foreſinger, and another between the laſt Finger, and the laſt but one called *Salvatella*, and ſometimes opened in *Quartan Agues*.

There are ſeveral Veins on the Leg and Foot opened, to give Relief to the Patient. In the upper part of the *Muſculi Gemelli*, there is one called *Poplitea*, the opening of which is uſeful in the Gout, and prevents Varicoſe Swellings of the Leggs. The *Saphæna* is opened above and below the Internal Ancle. This Vein continues its courſe on the Foot, quite to the Juncture of the great Toe, and may be opened there: In opening it above the Ancle, great care muſt be taken not to prick a Nerve, which terminates in that place, and on the Foot not to hurt the Tendons. There is another Vein which winds round the extremity of the ſame Articulation, called the *Sciatica*; from the opinion that, abundance of Blood drawn out thence, appeaſes pains of the Hip-Gout. The *Saphæna* and *Sciatica*, ſpread numerous Branches

Branches on the Foot, which may be opened when the great Trunks do not appear.

The opening of a Vein is done after two ſeveral ways, either by Pricking or Cutting. The larger are cut, but the leſſer and thoſe which lie deep, admit only of ſimple Punction; as the Veins of the Noſe, where the adjacent parts would be hurt, if the Point of the Lancet were raiſed. Inciſions are made after three ſeveral manners, Lengthways, Tranſverſe, or Oblique, and greater or leſſer, according to the largeneſs and depth of the Veſſels.

To open the Veins more conveniently; Firſt ſtop the Refluent Blood with a Ligature, except there be a Varicoſe Swelling, where the Circulation of the Blood being interrupted, the Veſſels are tumid enough without any Artificial Help.

In Bleeding Delirious Perſons, the Veſſels are ſo exceeding large, and Diſtended by the furious agitation of the Blood, that for the moſt part there is no occaſion for Ligature, the Reaſon of which is plain from the Laws of Circulation.

The Frontal Vein may be opened lengthways when it is rowling, and Tranſverſly when it is ſteady. But in whatever manner it be opened, the Lancet muſt be held inclining, for fear if it were plunged Perpendicularly in, it might hurt the *Pericranium*, and the ſubjacent Bone.

The Veins and Arteries of the Temples, may be opened in two places, *viz.* on the Temporal Muſcles, or under the Lobe of the External Ear, at the entry of the *Meatus Auditorius*. On the Temporal Muſcles, theſe Arteries muſt be opened lengthways, to prevent dividing their Fibres, which may happen to be followed by a huge Swelling of the Head, *Delirium* and Convulſions. The Fear of ſuch bad Conſequences, ought to make a Surgeon who values his Reputation, cautious of hurting theſe Muſcles.

The Vein in the Greater Angle of the Eye, muſt be opened lengthways, leaſt a Tranſverſe Section hurt the Tendon of the Oblique Muſcle, and cauſe a Deformity in the Part; But it is much better to forbear medling with this, for fear of hurting the Lachrymal Gland.

To open the Vein in the Noſe, plunge a Lancet directly down, and pretty deep in the extremity of the Noſe, between the two Cartilages. This Lancet muſt be kept in its Scales, by a Tape wtapt round it, and only plunged in without raiſing its Point: For the Veſſel lies ſo low, that if the Elevation

Elevation of the point were anſwerable to the depth of the Punction, the Orifice would be very large, and leave a very unſeemly Scar. The Veins on each ſide the *Frænum* of the Tongue, are opened with a Lancet wrapt round with a little Tape to its point. The Tongue is to be raiſed with the left Hand, and with the right a ſmall Tranſverſe inciſion made, which muſt not be too deep, for fear of opening the Arteries, which lie very near the Veins. If theſe happen to be cut, the Flux of Blood will prove difficult to ſtop, ſince no Dreſſing can be applied to the Part. When the Patient has bled enough, let him waſh his Mouth with cold *Oxycrate*; If this be not ſufficient, apply to the Wound ſome Reſtringent Powders of *Terra Sigillata*, *Dragons Blood*, *Vitriol*, or keep a ſmall Compreſs dipt in Mons. *Lemery's* Styptick Water on it.

To bleed all the Veins of the Head, it is neceſſary to make a Ligature round the Neck, becauſe the Blood ſent to the Head by the Arteries, is conveyed back to the Heart by the Jugulars, and the Ligature cauſes them to ſwell. Sharp, ſtrong Lancets are required to open the Veins of the Neck, becauſe the Skin is very lax here, and more difficultly opened, than in other parts where it is more Tenſe, and the Veins muſt be opened lengthways, becauſe they are large and unſteady.

In making a Ligature on the Jugulars, the middle of the Fillet is to be applyed behind on the Neck, the two Ends brought before, turn'd over each other, and put into the Patients Hand, to ſtraiten them as he finds he can bear; or if he by any Accident be diſabled, an Aſſiſtant muſt hold them for him till the Work be finiſhed. In Apoplexies and Quinſies, no Ligature can be made without danger of Suffocating the Patient. In ſtead of this, the Artiſt muſt order one of the ſtanders by to keep his Thumb on the bottom of the Vein of the oppoſite ſide, in the Cavity of the Clavicle, and preſs the ſame ſide in which he Deſigns to bleed with one of his own Thumbs, thruſting in the Lancet with his other Hand. The two Veins thus Compreſt Tumefie, and may be well enough opened, without ſtraitning the Windpipe. To ſtop the Blood, apply to the Wound *Maſtich* ſpread on Rags or Leather. The Reader will find a proper Bandage for bleeding in the Neck, deſcribed in the Dreſſings; becauſe a ſimple Emplaſter often is not ſufficient to ſtop the Blood, when it is in a violent Commotion.

In opening the Veins of the Hands and Feet, the Parts are to be plunged in Water, as hot as the Patient can well endure it. This is done as well to make the Skin tender, as to raiſe the Veins.

The Veins of the Hands are to be opened lengthways, for fear of hurting *the Tendons which abound there by a Tranſverſe Section*, and the Ligature is to be made above the Part intended for Bleeding. In opening the Veins of the Ham, or *Vena Poplitea*, a Ligature muſt be made above the Knee; The Orifice muſt be made Tranſverſe, and proportioned to the largeneſs of the Veſſel.

The Surgeon ought to have an eſpecial care, leaſt the Patient faint: This happens ſometimes in the Operation, and ſometimes after. To avoid this Accident at the time of Bleeding, the Surgeon muſt enquire, If he be commonly ſubject to faint upon the like occaſion; If he has been long faſting; If he do's not find himſelf inclin'd to go to Stool. If he uſually faint in Bleeding, he muſt be bled lying along in his Bed, take cold Water in his Mouth, be diverted from looking on his Blood, entertained with ſome agreeable Relation, have Vinegar put to his Noſe to ſmell too, or ſome Spiritous Liquor, as *Spirit of Wine*, *Orange-Flower Water*, *Queen of Hungary's Water*, or Laſtly, take a Spoonful of Wine, or ſome other Reſtorative.

It is by no means convenient to bleed any Perſon immediately after his Stomach is filled with Meat; for the Weakneſs which the loſs of blood cauſes, is followed by Vomiring, for fear of which Miſchief, it is beſt to ſtay till Digeſtion is finiſhed.

The Surgeon muſt bleed Perſons ſubject to faint, lying down: The ſame Poſture is proper for Perſons weakned, and worn out with long Illneſs. But this is only to be underſtood of Bleeding in the Hand or Foot; for bleeding in the Head or Neck, neceſſarily requires the Patient to be a little raiſed. A Stout Robuſt Man, who is not daunted with bleeding, may be bled ſitting in a Chair, or in his Bed, whatever the part be. Bleeding in the Veins of the Hams, and Varicoſe Swellings, muſt be done, the Patient ſtanding erect, becauſe then the Veſſels riſe beſt.

The Surgeon may Operate in three ſeveral Poſtures, Standing, Sitting, or Kneeling. He muſt be ſtanding to bleed in the Head, Neck and Arm, ſitting to bleed in the Foot, or kneeling if he cannot find a convenient Seat. Laſtly, He is often conſtrained to kneel on the Bed to bleed ſuch

ſuch Patients as are exhauſted by long Sickneſs, and unable to bear the leaſt ſtirring.

Sometimes when a Surgeon is called to miſerably poor People, all Conveniences are wanting, even ſo much as a Fillet to bind the part; in this caſe he muſt make the beſt ſhift he can, and accommodate himſelf to the neceſſity of the place.

A good Light is of wonderful Service to a Surgeon in all Operations, but eſpecially in Bleeding, and the Succeſs of this nice Operation, depends very much on the well managing that. He muſt never if poſſible, do it by the light of the Sun; becauſe his own Hand, or the Patients Arm cauſes a ſhadow. If the Operation be done by the Light of a Candle, though a great Wax Taper give a better Light than an ordinary Candle, yet it is never to be made uſe of; leaſt if a drop of Wax by any Accident ſhould fall, it might ſcald the Arm, and the Patient draw it back, whereas a drop of Tallow would be ſcarce ſenſible, at leaſt create no very troubleſom Pain.

If the Perſon be very Hairy ſhave the part, eſpecially if it be the Foot or Hand. When hot Water is neceſſary to bath the part before bleeding, all above the place intended for the Operation muſt be bathed, eſpecially if the Veſſels be large, and lie deep. And to make the Patient able to bear the hot Water, the part muſt be firſt plunged in warm Water only, and hotter ſtill gradually pour'd in, till the Patient is no longer able to endure it. If the Veins of the Arms are difficult to find, the whole Limb muſt be bathed in hot Water. The moſt convenient Veſſel for which purpoſe, is a long Kettle, ſuch as is uſed to boil Fiſh.

The Surgeon ought to have an exquiſite Senſe at the extremities of his Fingers, and to preſerve this, muſt not uſe any Laborious or Mechanical Occupation, muſt not touch any rough Objects, muſt have a great care of Burns, (all which leave the Skin Thick and Callous,) and Wine and Women, which create *Tremors*.

The Surgeon muſt be provided with Ligatures, Lancets, and proper Veſſels to receive and meaſure the Blood. He muſt have diverſe ſorts of Fillets, ſome longer for Perſons of better Faſhion, and ſome leſſer for ordinary and mean People. He muſt never uſe the ſame to ſound Bodies, and thoſe who have any Cutaneous Diſeaſe, as the Itch, Small Pox, Meazles, Carbuncles, Malignant or ſpotted Fevers, for fear of communicating the Infection.

If the Veſſels to be opened lie deep, a long, ſtreight Lancet is the moſt proper to be uſed; for if it ſhould be broad, the

the Orifice would be too large. Superficial and rowling Veſſels, muſt be opened with larger Lancets, whoſe points are firm and ſtable. Infants require leſſer Lancets than Adult Perſons.

Surgeons who daily practiſe bleeding, may receive blood in any ſort of Veſſels, and gueſs pretty well at the quantity, at leaſt without being much deceived, but in great Diſeaſes, and Feeble, Weak, Exhauſted Subjects, they ought if poſſible to have Veſſels to meaſure exactly the Blood, as ſmall Porringers of three or four Ounces. It is proper for an Artiſt to practiſe the trying, how much two or three of theſe Porringers hold in any Houſhold Veſſel, that in defect of theſe, he may at any time gueſs the quantity of Blood emitted.

When the Blood is not received in Porringers, as in bleeding in the Hand or Foot in warm Water, the quantity of blood is gueſſed, computed by the largeneſs of the Orifice, the time of its running, and the Tincture it gives to Linen, found either by dipping Rags in it, taking up a little in the Hand, and dropping it on a clean Napkin.

If the Blood be received in any other Veſſels beſides Porringers, to judge aright of the quantity they muſt not be too wide, but of a reaſonable depth, becauſe theſe are leſs apt to impoſe on the Senſes, than more ſhallow and wide ones, in which the Blood appears of a more Florid Scarlet colour.

Before the Artiſt proceed to open a Veſſel, it is neceſſary to make a Ligature ſufficient to ſtop the Refluent Blood. In performing his Work, he muſt alike ſhun the two Extreams of Boldneſs and Fear: For on the one Hand, ſome Timorous Men apprehending they may hurt the Contiguous parts, do not make a ſufficient Orifice, while on the other, ſome raſh Surgeons without Fear or Wit, commit very dangerous Errors.

There are four Particulars in this Operation, the Right placing the Ligature, the well Holding the Lancet, the Searching for the moſt proper place for the Aperture; and laſtly, the Artful opening the Veſſel.

The Ligature is ever to be made above the intended aperture, except in the Head and Neck, where it is below.

When the Vein lies deep, and difficult to come at, ſome Surgeons make two oppoſite Ligatures, or make three turns of the Fillet round the Limb, or ſow a ſmall Boulſter of Linen Cloth, three or four times double, on the middle of the Fillet, or place where it is applyed, to make a more exact com-

compreſſion on the Part, and theſe ſort of Ligatures they call *Pontons*. But all theſe are miſtaken Methods, proceeding from ignorance of the Cauſes. The Ligature with the Boulſter, fails of the intended effect; becauſe ſome Veſſels being leſs compreſt than others, the Blood aſcends by ſome, whilſt it is intercepted in others; and for this Reaſon, one which equally compreſſes all, is to be preferred. The third turn is unneceſſary, ſince the firſt two are ſufficient to make any Conſtriction deſired, by binding them ſtreighter, and inconvenient, becauſe when the bleeding is over and this undone, there remain two more to be loos'd. The two oppoſite Ligatures tend more to hinder, than promote the Riſing of the Vein. The upper has no other effect in ſtopping the current of the Blood, after the lower is made, except it be to retain a ſmall proportion of it, in the intervening ſpace between it and the lower; but on the contrary, it puts ſome ſtop to the Blood paſſing through the Channels of the Arteries into the Part, and ſo leſſens the Riſing of the Veins below the Ligature. So that doubtleſs the beſt way of making a Ligature on any part in letting Blood, is by two ſimple turns of the Fillet, exactly over one another; which may be conſtringed or relaxed at pleaſure, by ſtreightning or looſing the Ends near the Knot, which ſtays them.

The Ligature muſt be made at ſome reaſonable diſtance above the place intended for bleeding; for inſtance, about the breadth of two Fingers. Thus in bleeding in the Arm, it ought to be placed about two Fingers breadth above the Juncture of the Elbow, at the ſame diſtance from the Fiſt and Ancles, in bleeding in the Hand or Foot. At the ſame Diſtance above the *Rotula* of the Knee, in opening the Veins of the Hamms, and in all bleeding of the Head and Jugulars, in the loweſt part of the Neck.

The *Germans* and other Foreign Nations, make uſe of the Fleam in bleeding; But our Lancets being more convenient, and this now grown obſolete, I ſhall omit deſcribing it. But here the Invention of the *Americans* muſt not be forgot, who to ſupply the defect of Iron, unknown to them before their Commerce with *Europe*, made Lancets of ſharpned Flints and Bones.

The Surgeon in bleeding muſt open his Lancet in ſuch a manner, that it may make a Right Angle with its Scales, except in opening the Veins of the Tongue or Noſtrils, where the Lancet is wrapt round with a Tape in ſuch manner, that both it and its Scales ſtand in one right Line.

The

The way of holding the Lancet is very different, ſome hold it very long, others ſhort, for my part I prefer the middle way. If it be held too long, it is difficult to direct aright, eſpecially if the Skin be dry and unſteady. On the other hand in holding it too near its Point, there is not room enough for a ſufficient Punction in Fat Bodies, or ſuch as have their Veſſels lying deep. The Lancet is beſt held between the Thumb and Forefinger, not the Thumb and two Middle-fingers, or Thumb Fore and Middle-finger, as ſome direct. The three laſt Fingers ſerve for a ſtay to the Hand, to keep it firm and ſtable, and are to reſt a little on the part below, and on one ſide the Orifice, which is a more commendable way than Bully like, to run the Lancet into the Veſſel, without regard to Security. The Aperture is to be made in the place which repreſents it ſelf faireſt, except ſome Neighbouring Artery, Tendon or Membrane forbid.

The Operation in opening a Veſſel, conſiſts of three parts; Punction, Inciſion, and Raiſing the Point of the Lancet. All theſe are to be ſo promptly done, that to the Spectator they may appear but one Action. The Surgeon ought to be provided with all Neceſſaries, and to have at leaſt two Aſſiſtants by him if poſſible, one to hold the Candle, (when neceſſary) and Porringer, and the other to do him any Service occaſion ſhall require.

In Bleeding in the Arm, after the Patient is put in a good Poſture, and the Bed covered with Linen to receive the Blood which ſprings out at firſt ſomething impetuouſly, and (without this Care to prevent it) would be apt to ſtain the Bed-cloths. The next thing is to tuck up and faſten the Patients Sleeve, and cover it with a Napkin, for fear any Blood may happen to be ſpilt upon it. Theſe little Precautions, though not very Material to the thing it ſelf, yet are apt to beget a Favourable Opinion of the Artiſt in the Mind of the Patient, who from obſerving theſe minute Circumſtances of his proceeding, is apt to conclude him careful and dextrous.

When this previous Buſineſs is done, the Surgeon muſt feel the inſide of the Arm in all places where the Veins appear, to diſcover where the Artery lies. This is diſcerned by the Pulſe or Beating, which is not ſenſible after the Ligature is made; and therefore it is to be found before. The Ligature as I noted before, is to be placed two Fingers breadth or ſomething more, above the Flexure of the Elbow, to paſs twice

twice round the Arm, and be tyed with a Bow knot on its out ſide. The firſt round muſt not be altogether ſo ſtrait as the ſecond, and the Skin not forcibly extended, by drawing it up or down, leaſt upon relaxing a little, the Ligature to give way to the Blood iſſuing out, the Orifice cloſe and obſtruct the Paſſage.

After the Ligature is made, ſome little time muſt be allowed for the Veins to ſwell, during which the Surgeon may open his Lancet, put it in his Mouth, take again the Patients Arm in his Hand, and (making ſeveral Frictions, drive up the Blood towards the place intended for the Inciſion;) feel the Veſſels with his Fingers, and chuſe out ſome place for the Aperture, which anſwers beſt. This Anſwering is a gentle Reſiſtance, which yields to a moderate Compreſſion, and Reſiſts the Finger, if the Compreſſion be very ſlight. But obſerve here, this anſwering of the Vein may be very deceitful, eſpecially in the middle of the Flexure of the Arm, when numerous Scars have made a ſort of ſmall *Sinus*, which may impoſe on the ſenſe, and appear like a Vein on the Surface, when the Real Vein lies much deeper.

After a long while feeling too and fro, if no Vein appear which can be opened with any tolerable Security, Frictions with hot Cloths are to be uſed, and continued for a conſiderable time. Or the Ligature taken off, and the Arm plunged in hot Water bound up again, and Frictions us'd as before. If after all theſe ways tryed, no Veſſel appear capable of being opened, it is more adviſable to deſiſt, than bleed at all Adventures, as ſome Raſhly do on the Scars of old Orifices. This Practice is occaſioned by the hopes of finding the ſame Veſſels, which is a miſtake, ſince the Veins change their Situation under the Skin, according to the Age or good Caſe of the Body; nay, ſome Veſſels are ſo leſſened by frequent Bleeding, they at length become ſcarce ſenſible.

If after a Careful Tryal, the Surgeon comes to diſcover a Veſſel which lies deep, he muſt aſſure himſelf well of the Place by ſeveral feelings, and rub the part with a little Oyl to ſupple it, and facilitate the entring of the Lancet, eſpecially if the Skin be dry, rough and ſcurfy: Laſtly, to ſecure the place of the Vein, he muſt make an impreſſion with his Nail, which may ſerve to guide him.

After the Artiſt has obſerved theſe Circumſtances, graſping the Patients Arm in one Hand, he muſt take the Lancet

cct in the other, and holding its Blade firmly in the middle, between his Forefinger and Thumb (ſtaying his three remaining Fingers on the Patients Arm) thruſt it in preciſely in the loweſt part of the Impreſſion made with his Nail, and cutting a little Tranſverſely, raiſe up its Point to cut through the Veſſel and Teguments, and widen the Orifice. If he ſuſpect the Lancet to be plunged in too deep, he may draw it a little back, before he brings up its point. Cutting Tranſverſly is the ſureſt way not to miſs the Veſſel, and large Orifices are to be preferred to ſmall ones, for the free emiſſion of the Blood. The largeneſs of the Orifice is more neceſſary in Veſſels which lie deep, becauſe the Fleſh and Fat is apt to choak the paſſage, and hinder the Evacuation. Add to this in the laſt place, that ſmall Orifices are apt to leave *Thrombu's* behind them.

In Bleeding in the Arm, the Surgeon muſt feel all over it with his Forefinger for the Artery, which commonly lies under the Baſilick Vein. I obſerved before, that this Search is neceſſary before the Ligature be made, becauſe after it the Veins are Tumefied, and the Pulſation is not ſenſible. The next Search is after the Tendons, which are diſcovered in bending the Arm by their Rigidity. When the place of the Artery and Tendon is certainly known, the Ligature is made two Fingers breadth above the Bending of the Elbow, and place of the intended Orifice. The middle of the Fillet is to be applyed on the Arm, and paſſing twice round it, to be tyed behind: The knot is beſt placed above the Joynt, leaſt if it be below it incommode that Hand which holds the Patients Arm; The Ligature muſt not be ſo ſtrait, as to compreſs the Arteries which import Blood into the part; it is enough if it be ſufficient to ſtop the Reflux of the Blood in the Veins.

In Bleeding in the Right Hand, the Surgeon muſt take the Patients Arm in his Left Hand, and prick him with his Right; and on the contrary, in the Left he muſt take it in the Right, and bleed him with his Left. Before the Operation, it is neceſſary to conſider well which Veſſel is faireſt, that is largeſt, and which has leaſt danger in it; for in caſe the Artery adhere to it, it is better to prick the leſſer, than run any hazard in the greater. The Cephalick is the moſt ſecure of all the Veins of the Arm, having no Artery or Tendon accompanying it, and yet Surgeons are not very willing to bleed in it; becauſe the Skin on the upper ſide

of the Arm is pretty thick, and the Blood do's only flow down the Arm without ſpringing, which do's not ſo well pleaſe the Patient, who when the Blood ſprings out, thinks the Operation better performed, and is fond to have it thought he has a great deal of Vigour. If the Veſſel lies deep, and is not Viſible, which often happens in the thick Arms of ſome Women, in order to find it, he muſt graſp the Arm in one Hand, compreſſing the place where the Veſſels ought to appear with his Thumb, and with the other Hand make ſeveral Fricſtions upwards, preſſing the Veſſels all along to ſee if he can diſcover any Blood ſtrike againſt his Thumb. When he finds any Veſſel under his Thumb, he muſt take it inſtantly off, marking the place with his Nail, and then prick a little below the impreſſion.

The Punction is made with the Lancet, either with or without raiſing the Point. In the firſt way the Surgeon takes the Lancet between the Thumb and Fore-finger, meeting even (not too long, becauſe it would not be ſteady, nor too ſhort, becauſe it would be Troubleſom ;) and then reſting his three other Fingers on the Patient's Arm, plunges his Lancet into the Veſſel, a little on one ſide, and when he is in raiſes its Point , and ſo cuts through it. This is the beſt Method of Operating, when there are no Reaſons againſt it, but it is the moſt Painful.

In bleeding without raiſing the Point, the Lancet is held in the ſame manner as before, plunged directly into the Veſſel a little beneath, and ſo brought forward without turning up its Point ; This way is leſs painful that the former, but in ſome Caſes is not without Danger. If the Tendon or Artery lie directly under the Vein, this laſt Method is never to be uſed, becauſe it requires deeper Punction, and there is great Danger of hurting one of them ; On the contrary, if either lie on the ſide, there is ground to fear they may be cut by raiſing the point. But obſerve which ſoever of theſe ways be practiſed, the Lancet muſt be held ſomething inclining, and not too Perpendicularly over the Vein, leaſt entring in this Manner, it prick the Membrane of the Muſcles, from whence great Pain and Inflammation would enſue.

In Veins running over great Muſcles, the Puncture is made obliquely upwards ; for in pricking directly down, it is ſcarce poſſible to avoid hurting the Membranes, which inveſt the Subjacent Muſcle, which will be attended with Pain and Inflammation.

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If one Veſſel only appear fair, and that be accompanyed with a Tendon or Artery, the beſt way is to trace it through its whole Progreſs, till it leaves them, and where it appears alone, there make the Puncture. This is the way of Bleeding in the Arm. The Dreſſing I ſhall deſcribe below, in its proper place.

For Bleeding in the Leg, the Part is to be kept in warm Water to the mid Leg. This is done to bring the Blood more copiouſly into it, and ſoften the Skin which is very thick in that place. When the Part is well heated, the Artiſt ſearches for the Veſſel above or below the Ancle, makes a Ligature about two or three Fingers breadth above it, ties it ſtreight enough to compreſs the Vein without preſſing the Artery, puts the Foot again into hot Water to give the Vein time to Swell. Then (the Patient ſitting on the ſide of his Bed, and he in a Chair before him) he lays the Foot on his Knee, graſping it in one Hand, and Bleeding with the other. In Bleeding in the Right Foot, the Lancet is to be held in the Left Hand, and on the contrary in the Right in Bleeding in the Left, according to the Rules before preſcribed.

The moſt convenient place for pricking is below the Ancle. There is no Artery, Nerve, or Tendon to fear there. The Part is carnous, and there is room enough to plunge the Lancet without pricking the *Perioſteum*; But above the Ancle there is little Fleſh, and there is great danger of pricking that Membrane, or ſome Nerve diſpenſed to the Part; the ill Conſequence of which, would be violent Inflammation and Pain. On the ſide of the Ancle there are diverſe Tendons, which ought to make the Surgeon cautious: When the Veſſels on the Internal Ancle are not fair, they appear for the moſt part fair on the Foot, but I would not adviſe bleeding here, upon account of the numerous Tendons which are in great Danger of being pricked, but if it be neceſſary, he muſt enter very obliquely.

For Bleeding in the Jugulars, a Contriction muſt be made with a Handkerchief, ſufficient to make the Veſſels riſe, and the Orifice be made lengthways of the Veſſel, in its middle.

In all Bleeding this may be accounted a General Rule. If the Veſſel be very large the Aperture is to be made in its middle lengthways; If of a middle ſize, as in the Arm, a little on one ſide, and ſomething obliquely from above downwards; If very ſmall, as in Infants, then it is to be cut Tranſverſly.

It is a general Rule likewiſe, That in what ever Veins of the Head the Evacuation be made, the Ligature muſt ever be about the Neck. In Diſtempers of the Head, the great Vein in the midſt of the Fore-head, and the Veins under the Tongue are often opened, but doubtleſs the Jugulars are beſt in moſt of theſe Caſes, to make the moſt prompt and copious Evacuation.

In Bleeding under the Tongue after the Ligature made, it is raiſed, held againſt the Palate, and then the Vein opened, and the Blood ſtopped with a good Reſtringent Gargariſm, if it do not ceaſe of it ſelf.

Arteries are opened in the ſame manner as Veins, but theſe are never to be pricked, unleſs where they immediately paſs over ſome Bone, which no other Arteries in the Body do, except thoſe of the Head; the Principal of which for this Operation, is the Temporal. Dr. *Willis* pretends, Arteries are opened more Succeſsfully than Veins, in Obſtructions and Inflammations, as for inſtance of the Eyes, becauſe they contract and retire within the Fleſh, are Cicatrized there, and ceaſe from their Office of conveying blood to the Part.

After Inciſion made, when the Impetuoſity of the Blood begins to abate, the Ligature muſt be a little relaxed; that as much Blood may paſs into the Part by the Arteries, as will ſuffice for the intended Evacuation. Farther for promoting the Diſcharge, ſome little round thing as a Lancet-caſe, or the like, is to be put into the Patients Hand, to turn about with the extremity of his Fingers only; This Action cauſes a Contraction of the Muſcles of the Arm, *viz.* the *Sublimis* and *Profundus*, which are Flexors of the Fingers, and by this means they expreſs the Blood in the Veſſels running on their inſide, and accelerate its Motion towards the Orifice. In Bleeding in the Throat, the ſame thing is effected by gently moving the lower Jaw, and in the Foot, by ſtirring the Great Toe. All the time the Blood is running, the Surgeon muſt hold the Patients Arm with one Hand, in which there is a double Convenience; Firſt, the eaſing and ſupporting the Part, which is heavy by the great quantity of Blood and Spirits ſtopt in it: And Secondly, the advantage of bending and extending it as occaſion ſhall require. With his other Hand he may diſtend the Skin, drawing it upwards, downwards, or on one ſide, to make the outward Orifice anſwer to that Vein.

When the intended quantity of Blood is drawn out, the Arm muſt be unbound, and the Surgeon with his Finger muſt

muſt preſs around the Orifice, leaſt any Blood happen to Stagnate under the Skin. The Wound muſt be exactly ſtopped by cloſing it on both ſides with the Forefinger and Middle finger; but if the Fat come out, this muſt firſt be put back by a Compreſs in one Hand, with the other Hand pinching together the Lips of the Wound, between the Thumb and Forefinger.

While the Surgeon is buſied in ſtopping the Orifice, the Servant who held the Porringer which received the Blood, muſt ſet it down on the Table gently, and ſtrike it over with a Feather, or ſome other light thing to take off the Froth. This Trifling Circumſtance has its uſe, to diſcover the true Colour of the Blood, and amuſe the People who moſt commonly are admirers of ſuch Myſterious Matters.

THE DRESSING. This conſiſts only in applying a little, thick, ſquare Compreſs on the Orifice, and keeping it on by binding up the Arm. Before this be laid on, the Surgeon muſt clear the Wound from Coagulated Blood, which if neglected, will hinder Coalition: Then keeping the Lips of the Orifice together with his Fingers, he muſt ſpeedily apply the Compreſs, Staying it on with his fore and middle Finger. If any little Flatulent Tumour appear on the Orifice, which is not uncommon when it is too ſmall, the Compreſs dipt in cold Water diſperſes it. For binding up the Arm, he muſt take a Fillet of about an Ell long, and an Inch and a half broad, and gathering into his Hand three or four Inches of one end of it, and (laying the Thumb, fore and middle Finger of his left Hand, in bleeding in the Right Arm, or the Thumb and the ſame Fingers of his Right in bleeding in the left Arm, on it) apply that part which he holds between his Fingers, on the Orifice, and ſo make ſeveral Croſſes over the bending of the Elbow; and Laſtly, when the Fillet is ſpent, bringing back that end which he held in his Hand, he muſt tie both ends behind the Arm. Some place the Knot behind the Arm, above the bending of the Elbow, and others below. If the Fillet be of a firm and ſtrong Cloth, and there be no reaſon to fear the Patient will make uſe of his Arm, the Knot is beſt placed above, on the contrary, if the Cloth be weak and much worn below, for fear when the Patient ſhall come to open his Arm, the Fillet break. In the laſt place, obſerve the Fillet muſt never be rolled.

For Bleeding in the Foot.

The Artiſt muſt bring together the ſides of the Orifice, cleanſe the Wound of Blood, lay a ſmall, thick, ſquare Compreſs on it, and keep this on with a Fillet of an Ell and half long, and an Inch and half broad, rolled at one end. To apply, he muſt lay a good length of the Fillet on his Knee, and place the Patients Heel on it, then with the other end he muſt make a Circular Turn on the Compreſs, and an X on the Foot; After divers Circumvolutions, he muſt bring the Fillet obliquely over that end which is under the Heel, and then bringing this back, form a ſort of Stirrup from the reſemblance to which, this Bandage takes its Name.

For Bleeding in the Fore-Head.

The ſmall Compreſs applyed on the Orifice, is kept on by the Handkerchief folded croſs, or Diagonalwiſe, in the form of a Triangle: The Artiſt takes the Handkerchief thus folded in both Hands, with his Thumbs above, and Fingers below, and in this manner applies its Middle directly over the Wound, then ſlides his Hands on the Handkerchief thus placed behind the Head, and brings both ends as far forward as they reach, and pins them at the end; In placing the Handkerchief, care muſt be taken to avoid Wrinkles as much as poſſible.

There is another Bandage uſed in Bleeding in the Forehead, called the *Diſcrimen*. In this the Compreſs is kept on by a Roller or Fillet of an Inch and an half broad, and three Ells in length, rolled at one end. The Method of making which is thus. The Artiſt applies one end of the Roller to the Top of the Noſe, and meaſures a length from thence to the Nape of the Neck. This he lets hang down over the Face, then he paſſes the Fillet along the Sagittal Suture, brings it to the Nape of the Neck, and back over the Parietal Bone on one ſide, over the Parietal Bone on the other; then lifts up the end of the Fillet over the Face, lays it over the Sagittal Suture, leaving it to hang behind, then returning to the other end, brings it over this depending part, engages it under it, ſo continuing his Circular Turns round the Parietal Bones till the Fillet is ſpent, and then pins it at its ends.

There

There is a third Bandage for bleeding in the Forehead, called the *Scapha*, from its reſembling a little Boat, and is thus made; The Artiſt takes a Fillet or Roller of an Inch and half broad, and three Ells in length, rolled up at one end. After a ſmall Compreſs laid on, he applies the Fillet obliquely on it, lets fall about a Foot in length, and with the other end paſſes over the Parietal Bone, behind on the Nape of the Neck, over the other Parietal Bone, and ſo over the Wound; then he takes up the end hanging before, lays it over the Head, leaving it depending behind, then returns to the end of the Fillet which he left, continues his Circular rounds (over the Parietal Bone, the Wound, the Parietal Bone on the other ſide, behind the Nape of the Neck) and pins it at the End.

There remains ſtill a fourth Bandage for the Forehead, which is called the Royal Bandage. To make this, the Artiſt takes a Roller of an Inch and half broad, and three Ells in length, rolled at one end, as in the two former, there he Meaſures twice the length or diſtance from the top of the Noſe, to the Nape of the Neck, this he leaves hanging down before on the Face from the Compreſs, and with the other or Rolled end, he proceeds over the Sagittal Suture, deſcends behind the Head, returns before, paſſes under the Chin, then reaſcending on the Cheek, paſſes near the leſſer Angle of the Eye, then over the Head, deſcends behind, returns before, paſſes under the Chin, reaſcends on the oppoſite ſide on the Cheek, paſſes as in the former very near the leſſer Angle of the Eye, and ſo continuing upwards paſſes over the firſt turn on the top of the Head, and makes a croſs with it Salterwiſe. Then he delivers the Roller to an Aſſiſtant to hold, whilſt himſelf makes three Pleats, each gradually longer than other, in that end of the Roller which hung over the Patients Face, and lays the remaining part over the Sagittal Suture, leaving it to hang behind his Head. When this is done, he returns to the Rolled end of the Fillet, and makes ſeveral Circular Turns round the Head paſſing over the Fore-Head and Parietal Bones) and in the laſt place pins the end of the Roller.

A Bandage for the end of the Noſe.

The Ancients bled at the extremity of the Noſe, between the bifurcation of the Cartilage, being extremely careful not to cut it. This Bleeding is very ridiculous, ſince there

are so many places more commodious for this purpose; but those who practise it, use the Bandage called the *Discrimen*, with this difference, that here they begin to apply the Bandage on the Nose, whereas in the former case they began on the Forehead.

A Bandage for the Temporal Artery.

In bleeding in the Temporal Artery, a Compress dipt in some Styptick Water is applyed on the Orifice, and the Bandage called the *Discrimen* made, which is the same used in opening the Frontal Vein; but with this difference, it is first applyed in this last Case on the Temples, as in the former on the Forehead.

A General Bandage.

The following Bandage is adapted to bleeding in the Forehead, Neck, or Temporal Artery. The Artist takes a Fillet of three inches in breadth, and an Ell long, this he doubles in the midst, and slits it lengthways with a pair of Scissars, leaving about three Inches square in the midst plain and undivided. When it is thus divided, it is called the Fillet or Roller, with four Tails. He applies the plain undivided part on the Orifice, brings the two upper Tails downwards, and the two lower Tails upwards, continuing them each respectively, circularly over the other, and pinning them at their Ends. The Reader may observe here as a general Rule, in applying these divided Rollers; That the two lower Tails must ever ascend, pass over the upper, and be fastned above, and the two upper must descend cross with the lower, and be fastned below.

These slit Rollers are exceedingly useful, and adapted to keep Applications on all parts of the Head, except in the Operation of the Trepan, where the Great Cap is in use, which shall be described in its proper place.

A Bandage for the Jugulars.

The Artist takes a Fillet of half an Ell long, applies the middle of it on the top of the Head, and leaves the two ends hanging on each side of the Neck; then he takes another Fillet of a competent length, and near three Inches broad

broad rolled at one end, with this he makes ſeveral circular Turns over the Compreſs, as far as the Fillet reaches, and then pinns it where it ends; Next he takes up the two ends hanging on the ſides of the Neck, and faſtens them on the Head, theſe are very ſerviceable to ſuſpend the Fillet rolled about the Neck. This is called the Contentive Bandage of the Neck. There are ſome Caſes which will not admit of any Bandage on the Jugulars, and here it is neceſſary to lay ſome Glutinating Emplaſter on the Orifice.

THE CURE. After the Bleeding is over, the Patient may lie down and drink off a glaſs of Water, which mixing with the Blood dilutes and cools it. The Patient is ſuffer'd to reſt for the ſpace of an Hour, and after takes ſome Reſtorative Draught. It is cuſtomary to forbid the Patient ſleeping, till he has taken this; but I profeſs I am a ſtranger to the Reaſon of this Practice, for in ſleeping immediately after Bleeding, Tranſpiration is free; and there ariſes a certain Dew on the Surface of the Body, which is very refreſhing. Beſides this is the moſt gentle, eaſie, and agreeable Slumber that can be imagined, Nature requires it, and ſeems to have Violence done her, when this Satisfaction is denyed her. However ſince Cuſtom prevails to the contrary, and perhaps ſome Accidents may have attended ſleeping at this time, I would not adviſe any Perſon to recede from the common and received Practice.

If the Phyſician has directed the Patient to be twice bled on the ſame day, the Surgeon may put ſome Oyl or Greaſe on the Orifice, to prevent its cloſing, and by this means ſave the trouble of making a ſecond Puncture. The leſſer Dreſſing is not commonly taken off under twenty four hours, or a longer time, if the Orifice be not diſpoſed to heal. For when the Limb is too ſoon unbound, the Wound is but half clos'd, the Air inſinuates into it, creates a little running Ulcer, which is difficultly healed, and moleſts the Patient exceedingly. The Dreſſing is left on much longer after opening an Artery, than a Vein; becauſe the Blood being projected with great *Impetus*, would forcibly open the Orifice, before the Coalition be perfected. When the Compreſs is to be taken off, if it adhere to the Orifice, it is better to leave it on, or Humect it with a little warm Wine, and ſo gently ſeparate it, than remove it by Violence.

If

If the Patient fall into a Swoon during the Operation, the Surgeon muſt cauſe him to be carryed to his Bed, if he be not already in it, fling a little cold Water in his Face, or give him ſome to drink, muſt open the Chamber Windows, and draw the Curtains, if the Diſeaſe and Seaſon of the Year permit. He muſt apply to his Noſe ſome Odoriferous things, as good Vinegar, Queen of *Hungary's* Water, Spirit of Wine, muſt call him frequently by his Name in his Ear, with as loud a Noiſe as poſſible, and unlooſe whatever is tyed about any part of his Body. When the Patient is come to himſelf, the Artiſt muſt place the Limb in a convenient Poſture, which is as various as the parts concerned. For inſtance, after Bleeding in the Head, the Patient muſt remain quiet, and have his Head ſupported with ſome ſoft Pillow, and lie a little inclining rather than erect: After bleeding in the Arm, the Patient muſt avoid all ſtirring, repoſing on his Bed, or ſome convenient Couch, with his Arm ſuſpended in a middle Poſture, between Bent and Extended: After Bleeding in the lower Parts, he muſt keep his Bed for the ſpace of twenty four Hours, to prevent any Fluxion or Suppuration on the place.

Moſt Perſons after Bleeding, are in ſome Diſorder, in which I would recommend boldly drinking a large Draught of Water, as a proper means to recall the Blood and Spirits determined, by opening the Vein towards the extream parts, beſides Water mixing with the Blood, allays its Heat. The grand Objection againſt ſleeping after Bleeding, is that Nature is always offended by two præcipitate a Change from one Extreme to another; That it muſt unavoidably be injurious, to put the Blood into two ſuch contrary Motions at once, as in Bleeding and Sleeping; in the Firſt of which it is brought from the Center to the Circumference, and in the latter, from the Circumference to the Center of the Body. The Second Objection is, That this concentration of the Blood in the time of Sleeping, fruſtrates the effect of the Evacuation, which is the Principal Intention of Bleeding. Others without aſſigning ſo many ridiculous Reaſons, only pretend if the Patient be permitted to ſleep, there is danger by ſome Motion of it, the Bandage of the Arm may be looſned, and others are ſo poſitive, as to affirm they have found Perſons ſleeping after Bleeding, actually dead. For my part, none of theſe Reaſons prevail with me, or hinder my believing, ſleep after bleeding very wholſom, nothing cooling the Body more effectually, (which is one of the

the principal ends of Bleeding) or calming the Blood more, after the diſorder it is put into by the Evacuation. Bleeding is a proper Remedy in want of ſleep; and after bleeding, moſt Men find a greater deſire of ſleeping, than at any other time, without any inconvenience attending it. As for the danger of loſing Blood in ſuch Perſons as have unquiet and diſturbed Sleeps, they may be well enough ſecured by a cloſe, well-made, double, Bandage, or by placing ſome Servant by the Patient, to obſerve all his Motions.

It is commendable, to refrain from eating immediately after Bleeding, or till ſuch time as the Blood and Spirits have reſumed their ordinary Courſe, which is a little irregular at that time; becauſe all the Fermentations conducing to Digeſtion, operate better in their Natural State; than when they are put in any commotion. The ordinary time of eating after bleeding, is the ſpace of an Hour, except the Patient be very weak, in which caſe he may take ſome Reſtoratives immediately, as a little Wine, or ſome other Spirituous Liquors. The Nouriſhment after Bleeding ought to be light, and eaſie of Digeſtion, as ſome good Strengthning Broath.

The Porringers muſt be ſet in ſome place where there is no Smoak, Wind, or Duſt, or where the Rays of the Sun do not beat, becauſe all theſe Accidents change the Surface of the Blood, and hinder the right judging of it. Veſſels of Silver, Pewter or Glaſs, are more proper to keep the Blood in, than Braſs or Copper. The Veſſels muſt be waſhed, and wiped clean, becauſe a little Moiſture remaining, imparts to the Blood a more florid Vermilion Colour.

Obſervations on the Blood in Porringers.

Since moſt Patients are Sollicitous about the State of their Health, they are generally inquiſitive concerning their Blood, and frequently asking the Surgeons Opinion of its Colour, Conſiſtence and Taſt.

The Blood is a Heterogeneous Liquor, compos'd of a Multitude of Particles, ſupplying proper Materials for the Reparation of the Body, which is in a conſtant Conſumption. The differing Particles, have each a different Configuration, and Diſpoſition of Surface, which make a various Reflection of the Light. Now that viſible appearance called Colour, being nothing elſe but the Impreſ-

ſion

ſion which the Rays of Light returned after a various manner make on the bottom of the Eye, it is conſequently true, the leaſt alteration in the Diſpoſition of the parts of a Body, muſt produce an Alteration in its Colour. This being admitted, no reaſonable Man will deny the Colour of the Blood in a State of Health, to be the undoubted Standard, and all others to be judg'd better or worſe, as they approach to, or recede from it; and thoſe Colours allowed to ſhew the moſt Vitious Diſpoſition of the Blood, which are moſt diſtant from the Natural.

Blood then is pronounced good, and of a Natural Colour, when it is Florid and Vermilion, which Colour it acquires in paſſing through the Lungs, as Dr. *Lower* by ſeveral Experiments has Demonſtrated. Whoever obſerves, that the Blood drawn out of the *Vena Cava*, before it enters the Right Ventricle of the Heart, and that drawn out of the Pulmonary Artery, is of a dark, brown, Red; and on the contrary, that drawn out of the Pulmonary Vein is of a Bright Red, and that drawn out of the Artery of no better a Colour, after having paſt through the left Ventricle, muſt neceſſarily conclude this effect proceeds from the Nitre, diffus'd through the Maſs of Air, which is inceſſantly drawn into the Lungs in Reſpiration, and ſo communicates its bright and lively Tincture. This Operation is ſtill farther confirmed by the following Experiment. If Blood ſtands for ſome time in a Porringer, the Surface will be of a Florid Colour, but the bottom of a Dark red; but if the *Coagulum* be inverted, and the lower ſide for ſome time expoſed to the Air, it becomes of as bright a Red, as its Surface before was. Which effect, undoubtedly proceeds from the Saline parts of the Air, which inſinuate themſelves, change the Diſpoſition of the Parts of the Blood, and ſo cauſe them to reflect the Rays of Light, after a different manner.

There is ground to pronounce the Blood bad, if it appear Blue, Whitiſh, Yellowiſh, or of very different Colours at once. The Ancient Phyſicians pretended from the Colour of the Blood, to determine which of the four Humours, Choler, Phlegm, Melancholy, or Blood taken in a ſtrict Sence (which they thought to be the Ingredients of the Maſs) were predominant. Chymical Phyſicians derive the various colours of the Maſs of Blood, from the ſeveral Exaltations of the Active or Paſſive Principles, which they believe to exiſt in the Blood. They aſcribe the Sound and Healthy State of the Blood, and its laudable Colour, to the equal Mixture of its Spirits,

Spirits, Salt, Sulphur, Water and Earth, and its Depravation to the effort in theſe Principles, to diſingage and ſeparate themſelves from each other.

It is a Problem among the Learned, why the Blood in Malignant Fevers, ſhould appear of ſo fine a Colour. This noble Colour is reputed an ill Sign; Becauſe (ſay ſome Authors) the corrupted Blood is deſtitute of Spirits, moves with difficulty through the Arteries next the Heart, and ſcarcely arrives at the Extreme Parts of the Body.

If it be askt whether a Florid Vermillion Blood be always good, the Anſwer ought to be, this depends very much on the Colour. Orifice of the Vein, the Manner of its iſſuing out, and the Veſſel which receives it. An Orifice too great or too ſmall, are both faults in Bleeding, and make the Blood appear different from what it would be, if the Orifice were proportioned to the Veſſel. If it be too little, the Blood ſpins out in a thin Thread, and is a long time in diſcharging it ſelf, and its Particles are much more changed by the Air, than when it comes forth in a larger Stream, and leſs Time: On the contrary, if the Aperture of the Veſſel be large, inſtead of ſpringing out, it runs down the Arm, and the Surface is larger, which likewiſe gives room for the Air to act on it, and create a lively red Colour. Again, if the Aperture of the Veſſel be too great or too ſmall, and by this means the Blood muſt cake and coagulate too ſoon, and the different parts have no time to ſeparate, and riſe to the Surface which appears Red, from the impreſſion of the Nitre of the Air, which gives it a diſpoſition proper to excite ſuch a lively Senſation in our Eye.

The Veſſel which receives it, contributes very much to the Colour, for if it be wide and ſhallow, it appears of a brighter Red, than if the Veſſel be deep and narrow; in the firſt it ſoon coagulates and cools, and leaves a greater Surface expoſed to be impregnated with the Aerial Nitre, the contrary happens, when it is received in narrow and deep Veſſels, in which it preſerves its Motion and Heat for a longer time, which gives its Parts liberty to ſeparate, and riſe towards the Surface, where they ſhew their proper Colour. If the Blood be much ſtirred, the Air acts on more of its Parts, and it cools ſoon, which makes it appear more red. Laſtly, if the Porringer or Veſſel which receives the Blood, have any Water left in it, with which it was waſhed, it cools ſoon, and its Motion ceaſing, there is not time for the diverſity

diverſity of its parts to ſeparate, and riſe to the Top, for which reaſon its Colour is finer. From theſe conſiderations it appears evidently enough, the Florid Red is not a certain ſign of good Blood, ſince this Beautiful Colour may be the effect of the different manner of letting out, or receiving this Noble Liquor. On the other Hand, the ſame Colour is not a ſufficient Reaſon to condemn the Operation, as ill performed; ſince the Blood ought to appear good in a State of Health, or Slight Indiſpoſition, where there is no Diſtemper ſufficient to communicate an ill Colour to the Maſs. In Perſons reduced to extreme Weakneſs, or after long Abſtinence, or when the fear of Bleeding, and the Terrour upon ſight of the Blood creates a depreſſion of the Spirits, in theſe Caſes the Blood is of a Beautiful Colour, becauſe the Spirits wanting force to project it to a diſtance, the Air has more power over it to impregnate it with its Salts; And for the ſame Reaſon, it ever has a Beautiful Colour in Malignant Fevers. On the other Hand, the bad Colour of the Blood is not always an Argument, the Operation is well performed; becauſe in ſome Bodies the Blood is ſo corrupt, that it will appear bad, notwithſtanding it be ill let out, or ill received; In fine, a Right Judgment can only be performed from the duely comparing all Circumſtances before-mentioned.

Great Regard is to be had to the Conſiſtence of the Blood when it is cold, and has ſtood for ſome time in the Veſſel, and Obſervations of this kind will inform us, of its good or ill Condition. If the Blood preſerves its Liquidity after it is perfectly cold, it do's plainly diſcover its corruption, and the entire ſeparation of its Principles; on the contrary, if the Blood Coagulates ſoon, it is a Mark of its Thickneſs, and a Deficiency of Spirits: for which reaſon it is deprived of its neceſſary Motion in the Veſſels. The due conſiſtence of cold Blood, is ſuch as may preſerve a Moderate Union of its parts.

The Blood has rarely any Scent, unleſs it be entirely corrupted, its parts ſeparated, or it Stagnates in the Veins, and wants Agitation, as in Leprous Perſons, or is vitiated by the Remains of an Old Pox, in which caſes it ſometimes has an ill ſmell. Where the Blood is thus Tainted, the Patient cannot expect long Life. But in this place I think it pertinent, to give the Surgeon this neceſſary notice, That however the Blood may be free from any ill ſmell, it is very dangerous to draw in its Steams in Reſpiration, and conſtant Experience

perience ſhews us, that Surgeons in Hoſpitals who bleed often, are more frequently attacked with Malignant Fevers, than thoſe who dreſs Ulcers which exhale the moſt fœtid ſmell. From which Obſervation it evidently follows, that in Breathing through the Mouth or Noſe the Poyſon is received, which after circulates with the Blood, and infects the whole Maſs. To taſt the Blood is both dangerous and diſguſtful, and therefore very little information can be gained from this Head of its good or ill qualities; However the ſweet Taſt is reputed beſt, and any other as Salt, Bitter, or Acid, condemn'd as a Mark of its Depravation.

To conclude this Subject, thoſe who pretend to know the Patients Diſtemper by his Blood, are Impoſtors; there is indeed ſufficient ground to pronounce a Man to be indiſpoſed when the Blood has a bad appearance, but to aſſign the Diſeaſe and its Nature, is an impoſſible Matter.

Of Accidents happening after Bleeding.

Bleeding is the moſt Trivial, the leaſt Gainful, and yet moſt dangerous Operation, which an Artiſt is ever employed in. If well performed, no Reputation is gained by it, if any Accident happen after it, it is ſufficient to ruin his Honour by the Slanders of the ignorant Multitude, who never regard what they talk, and the Envy of his Fellow-Surgeons who are ever buſie in defaming one another. A young Surgeon therefore in point of Prudence ought to be well inſtructed in the Accidents which happen after Bleeding, and as well verſed in the Method of curing them, to prevent having recourſe to his Treacherous Friends.

The Principal Accidents in Bleeding are theſe which follow. In the firſt place it ſometimes happens the Vein is not prickt at all, or at leaſt very ill opened, and the Blood comes out with difficulty. The miſſing of a Vein proceeds either from its unſteadineſs when it is not fixed enough under the Skin, to abide the Lancet, or from ſome extraordinary Concern and Apprehenſion in the Artiſt, who when it lies deep is afraid of having ſome Membrane, Nerve, Tendon, Artery, or other dangerous part, or laſtly, ſome Deception of the ſenſe, when he believes he feels a Vein in a place where there is none. A Vein is ſaid to be ill opened, when the Inciſion is either too High, or too Low, or when the Surgeon do's not keep a rolling Vein ſteddy, for in this caſe the Vein ſlipping under the Skin, the outward Orifice does not anſwer to the inward, and the Blood is ſtopt. A Vein is likewiſe reputed

puted to be ill opened, if the Orifice be too ſmall; but whether this be a fault or not, is not yet decided, and it remains a controverſie amongſt the Learned, whether a ſmall or a large Orifice be beſt. I ſhall not pretend to determine this point, only here it concerns the young Artiſt to obſerve, that if the Orifice be too large the Blood will not ſpring out and make an Arch, and the Patient by conſequence will never be well contented.

If the Surgeon fail in his firſt attempt to open the Vein, becauſe it flies from his Lancet; He muſt ſubject it again directly on the Inciſion firſt made, and endeavour to prick it in the ſame Orifice, or if he like not that, in ſome other place above or below, or in any other Vein which preſents it ſelf fairer; but whatever he do's, he muſt be ſure to have a preſence of Mind, without diſcovering the leaſt Fear or Surprize, and not like ſome timorous Men appear out of Countenance upon miſſing Bleeding, which alarms the Patient and Standers by, and makes them think this, which is a very ſlight or no fault at all, a very great one. If the Surgeon miſſes the Vein, and do's not make his Inciſion deep enough, he may plunge his Lancet deeper in the ſame Vein, or make attempt to open it in another place, with better Succeſs. I think it better to do this in a new place, than to prick again in the ſame, and this is leſs apt to diſguſt the Patient, who feels a Pain ſtill remaining in the firſt Puncture. If the Surgeon be deceived in feeling, he ought to examine the Patients Arm with greater exactneſs, to diſcover the place where the Vein lies, and if after feeling and ſearching for a conſiderable time, he cannot find any greater certainty than at firſt, it is better to defer Bleeding till the Evening or the next Morning; becauſe the poſition of the Veins may ſhift in that time, and all who have any Experience in this matter, know very well they are ſometimes obliged to quit their work, and yet ſometime after Bleed in the ſame place, with the greateſt eaſe imaginable. If a Vein be ill opened, and the Blood comes ſo badly from it that the Patient cannot hope to be relieved by it, the Surgeon muſt Bleed in the other Arm, or defer the Operation, if the Nature of the Diſtemper require it to be done in the ſame, eſpecially if the Vein lies deep, becauſe theſe once beginning to evacuate, never riſe after, not to mention the Blood running down which blinds the Operatour. If the Inciſion be too ſmall, the Operation ought to be deferred till next day, or at leaſt the Patient ought to bleed on the other ſide. If the Orifice be

too

too large, and the Patients indiſpoſition be ſlight, the Surgeon may permit the Blood to run down the Arm, but if the Diſeaſe be violent, and the Phyſician pretend to judge of that by inſpecting the Blood, he muſt ſtreighten it a little, the better to give the Blood its Natural Colour.

Sometimes there happens to be a ſmall Collection of Blood under the Skin, which forms a *Thrombus*, and after a little Inflammation and Pain, ends in a ſlight Suppuration. The ſame conſequence ſometimes happens upon a Lancet not being ſharp enough, for this makes a ſort of Contuſion, and the edges of the Wound do not eaſily unite to each other. The extention of the Arm or other Motion of the Patient after Bleeding, ſometimes impedes the Coalition, and ſome little quantity of Blood getting between the Lips of the Orifice, forms a ſmall Ulcer which proves troubleſom to the Patient for ſome time. The Method of preventing theſe inconveniences, is firſt applying mild Digeſtive Medicines, and after them Deſiccatives; for inſtance, uſing a warm Liniment with *Oyl of Roſes and Vinegar*, laying a little *Baſilicon* on the Orifice, and over that *Galen's Cerate*, or Rags ſeveral times doubled dipt in *Oxycrate* a little heated, and after the Inflammation is over, and the Suppuration compleated, a ſmall Emplaſter of burnt *Ceruſe*, *Diapalma*, and *de Minio* to dry the Ulcer, and confirm the *Cicatrix*. Sometimes there is an Appearance of a Contuſion on the Arm, in Perſons who are nice and difficult to Bleed, which proceeds from more than ordinary handling the part in feeling for the Veſſel, or a ſmall Suffuſion of Blood under the Skin, but this accident is not attended with Pain, and eaſily removed by chafing the Part well with *Spirit of Wine*.

In Bleeding, the Membrane inveſting the Muſcles ſometimes happens to be hurt with the point of the Lancet, which Accident is ever attended with Miſchievous conſequences, ſuch as a Fever, a very great Inflammation, which in a very little time extends over all the inner ſide of the Arm, a hard Swelling which ariſes on the place of the Puncture, and terminates in a great Abſceſs, (and ſometimes more than one) between the upper part of the Arm, and the Extremity of the Hand. This Accident is ever worſt, when it happens in Hoſpitals of Great Cities, or Camps, where the Air is corrupted, or in foul Bodies, or ſuch as are over-heated by Fatigue, or Diſorderly living. Sometimes theſe Symptoms are not ſo violent, and the Patient only feels a conſiderable

Pain from the place quite down to the Thumb, on the ſame ſide, which incommodes him moſt in turning the Wriſt round. This Symptom proceeds from a Hurt of the Tendinous *Faſcia*, aſſiſting in this Motion, and this remains for a long time. This Accident is ſoon perceived by a vehement pain in the inſtant of Pricking, extending from the Place to the Thumb, where the Tendon terminates. The ill Conſequences which attend it are prevented in great meaſure by Defenſatives, as by unction of the Part with *Oyl of Roſes* and *Vinegar*, or the ſame beat up with the *White of an Egg*, *Bole Armoniack*, *Galen's Cerate*, and repeated Bleeding in the other Arm. When the Pain, Inflammation and Swelling encreaſe, it is proper to uſe an Anodyne Cataplaſm made of *Milk*, *Crumbs of Bread*, *Saffron*, *Populeum*, and *Oyl of Roſes*, and attempt to break the Suppuration on the Orifice by ſome proper Application to the Part, as *Emplaſt. Divinum*, *Diachylon* with the Gums, or a Cataplaſm made with *Sorrel*, *Lily Roots*, and *Baſilicon*, or Rags dipt in warm *Oxycrate*. If an Abſceſs happen in any other part beſides the Orifice, it is to be opened where the included *Pus* preſents it ſelf, and treated in the ordinary Method.

If none of theſe Accidents happen after the Puncture, and the Patient only complains of a Pain extending from the Orifice to the Wriſt, without any fear of Inflammation or Suppuration, it ſuffices to uſe a Liniment made of *Oyl of Roſes* and *Spirit of Wine* mixed, heated and repeated thrice a day, and after if occaſion require, *Oyl of Earth-Worms*, with *Spirit of Wine*, or *Queen of Hungaries Water*, or rub well the whole Arm with *Oyntment of Marſhmallows*, and *Unguen. Martiatum* melted. During the Cure, the Prudent Surgeon ought to viſit him ſeveral times a day, and perfect it with all poſſible ſpeed, to ſecure his Friendſhip, and prevent his being offended at the Accident.

Of an Eriſipelas after Bleeding.

The Surgeon is not always blameable, when an *Eriſipelas* ariſes after Bleeding, for however the Puncture of the Muſcular Membrane, or ſome Nerve or Tendon, may cauſe the effuſion of a Hot, Bilious Blood the common Materials of an *Eriſipelas*; yet it is no leſs certain, the ſame effect ſucceeds ſometimes on the opening Veins which are ſo very large, that the moſt unskillful Surgeon cannot hurt any other Part, or fear the leaſt Accident. In ſuch Caſes the

the Cauſe of the *Eriſipelas* is to be aſcribed to the ill Diſpoſition of the Patients Blood, which upon opening the Veſſel is conveyed thither by the Arteries with great impetuoſity, and in greater quantity, than can conveniently return by the Veins. This Conjecture is confirmed, by obſerving that at the ſame time this boyling impetuous Blood cauſes an extraordinary Inflammation, and very great Tenſion of the Arm, it has the like effect on the Lungs, and cauſes great Difficulty of breathing, Spitting of Blood, and all Symptoms of a Peripneumony, which ordinarily proves fatal after the *Eriſipelas* is vaniſhed: Add to this, the Inflammation is ordinarily leſs near the Orifice, than in more diſtant Parts.

THE SIGNS of an *Eriſipelas* are manifeſt enough, *viz.* a large viſible Swelling of the Arm, extending from the Shoulder to the Hand, with a Train continuing from the Arm-pit to the Elbow, the Skin appears Red and Inflamed, which is ſometimes greater in one place, and ſometimes in another. A continual Fever is kindled, the Patient feels a great pain with Tenſion and Burning, which will not ſuffer him to reſt; a Difficulty of Breathing enſues, the Spit turns red, and there is a ſenſible heat in every part of the Body.

THE CURE. Bleeding on the oppoſite Side is very Serviceable in remedying theſe Miſchievous Accidents, eſpecially if repeated ſeven or eight times ſoon after one another (to make a prompt and effectual Diverſion) in conjunction with external and internal Medicines, to abate the Fervour of the Blood. The Patient muſt be confined to a ſtrict regular Diet, to Cool, Purifie and ſupply a competent ſtock of Moiſture to the Maſs; ſuch as *Veal* or *Chicken Broths*, with Leaves of *Succory*, *Lettuces*, *Chervil*, *Borage*, *Bugloſs*, and a little Gelly, but not too Nouriſhing. The Patient may drink Ptiſans with Roots of *Scorzonera*, *Marſh-mallows*, *Nenuphar*, *Dogs graſs*, *Liquorice*, and every Night two Doſes of an Apozem, with cold Seeds boyl'd in it, adding ſome good *Syrup* and *Diacodium* ā. ℥i.

If the *Eriſipelas* ſpread much and extend to the Breaſt, it is very proper to give powder of Vipers in the firſt Draught of Broth, or in ſome Cordial Water, as *Scabious*, *Scordium*, *Carduus*, *Scorzonera* or *Wood-ſorrel* to abate its Violence, and fortifie the parts againſt the ill effects of the Malignant Bile, which infects all the Humours of the Body. The Diſeaſed Part muſt be fomented with a Decoction of Roots of *Marſhmallows*, Leaves of *Marſhmallows*, *Violary*, *Pellitory of the*

Wall, *Groundſil*, *Betes*, *Herb-Mercury*, adding after Boyling a little *Vinegar* of Roſes, and ſo uſing it thrice or four times a Day, ſoaking Stupes in the Decoction, and applying them hot on the part, which ought to be rubbed likewiſe with a Liniment made of the Juices of *Nightſhade*, *Plantain* and *Houſleek*, the Mucilage of the Seeds of *Pſyllium*, *Linſeed* and *Fenugreek* drawn in *Roſe-water*, Oyl of *Poppies*, *Camphire*, *Saffron* and the *Cerate of Galen*, or laſtly, let an Anodyne Cataplaſm made of *Crumbs of White-Bread boyl'd in Milk* be us'd, adding *Yelks of Eggs*, *Saffron* and *Oyl of Roſes*, and in extreme pain the Liquid extract of *Opium*.

If the Pain and Inflammation are moderate, a Diſcutient or Reſolvent Cataplaſm may be applyed, made of Meal of *Wild Vetches*, *Lupins* and *Linſeed* boyled in *Oxymel*, adding *Flowers of Roſes*, *Chamomil*, *Melilot*, together with *Oyl of Dill*, and St. *Johns wort*. If the Eriſipelatous Swelling Ulcerates in any part of the Arm, a Detergent lotion is proper, of *Birthwort*, *Periwinkle*, *leſſer Centaury*, *Gentian*, *Wormwood*, *Sanicle*, uſing after this, *Unguent. Nutritum*, *Pompholyx*, *Deſiccativum rubrum*, *Unguent* of *Ceruſs*, the Santaline Cerate, or other drying Medicines.

Doubtleſs the moſt dangerous Accident which happens in Bleeding, is the pricking a Nerve or Tendon, whoſe Symptoms and Method of Cure are very much alike. The Nerves of the Arm lie ſo deep, it ſeldom happens they are pricked, but it falls out too often in opening the *Vena Mediana*, that the Tendon of the *Biceps* Muſcle (which together with the internal Brachial bends the Cubit) is hurt, becauſe this Vein moſt commonly runs over, or at leaſt very near it. If the Nerve or Tendon be hurt, it is ſoon diſcovered by the violent pain, which the Patient feels at the time of the Puncture, as well as by the enſuing ſwelling in the Arm, which is very large, attended with ſtrong pulſation, great Inflammation, a continual Fever, and without ſpeedy care to prevent them, Convulſions, *Delirium*, a Gangrene and Mortification of the Part, which cruel Accidents kill the Patient in a ſmall time.

The Prevention of theſe Accidents is attempted by bleeding, and the ſame Regimen which is preſcribed in the *Eriſipelas* of the Arm, together with Piſans, Cooling Draughts, Laxative Clyſters and Apozems. The Surgeon muſt have an eſpecial care in treating the Wounded Part; to apply to the adjacent parts as well above as below, good Defenſatives made of *Oyl of Roſes*, *Whites of Eggs*, *Bole Armoniack*,

Juices

Juices of Solanum, *Houſleek*, *Vinegar*, *Oxycrate* made with Waters of *Plantain*, *Mulberries*, *Roſes*, *Henbane-ſeed*, and a greater proportion of the ſharpeſt *Vinegar*, than is commonly put in the Compoſition. Ancient Writers direct the pouring in hot Oyls, to abſorb the Moiſture iſſuing from the Wounded Nerve. This Gleet, unleſs prevented, ſoon turns ſharp and acrimonious, and acquires an exceeding Malignant quality, *Guido de Cauliaco*, calls it a Nitrous and Æruginous *Sanies*, and commends Oyl of *Savin* preferably to all others. In Defect of this *Oyl of Turpentine*, with the addition of a little *Spirit of Wine* may ſerve, or *Oyl of St. Johns wort*, *Lilies*, *Foxes*, *Caſtor*, Euphorbium, or *Oyl of Eggs*, if the Pain be exceſſive; Laſtly, in want of all theſe, *Oyl of Dill* or *Rue*, made by the Decoction of the Ingredients in common Oyl.

The whole Arm is to be rubbed for a long time together with *Oyl of Roſes*, *Camomil* or *Lillies*, or pretty ſharp *Vinegar*. Theſe Oyls are to be applyed very hot, and the whole Arm covered with the Cataplaſms preſcribed above in Eriſipelatous Tumours, or Emplaſtrum *Diachalciteos* or *Oxycroceum* diſſolved in *Oyl of Roſes* and *Vinegar*, or Emollient and Diſcutient Fomentations, with a little *Sal Armoniac*.

If theſe Remedies fail of the intended effect, the Surgeon muſt dilate the Wound to give the included Sanies (which is lodged on the Nerve or Tendon) a free diſcharge, and open a way for the more effectual applying Medicines to its bottom. This Method is uſed by the beſt Practitioners, and amongſt the reſt *Guido de Cauliaco*, who in treating of Wounds of the Nerves and Tendons, directs a Surgeon in theſe caſes principally to aim at, diſcharging the virulent Sanies, by making an inciſion through the Teguments, and laying the bottom open. *Ambroſe Parry* gives the ſame advice, and indeed all who underſtand the Nature of theſe Wounds, know it is by no means convenient to defer the laying them open, and diſcharging the acrimonious Matter pent up, nor is this ever done ſo Succeſsfully after ſome time, as in the beginning.

When the Wound is ſufficiently dilated upwards and downwards, with an Inciſion Knife or crooked Sciſſars, (and made rather too great than too ſmall) good Digeſtives muſt be put in it, as Liniment of *Arcæus* melted pretty hot, or a Digeſtive Unguent of *Turpentine* waſhed in *Spirit of Wine*, Powder of *Myrrh*, *Oyl of Eggs*, and *Gum Elemi*, and the

Wound filled up with Pledgits (without forcing any in) and the ſame Oyntments, Cataplaſms, Emplaſters and Fomentations continued on the Tumefied part as before, till a good Suppuration is procured and all Accidents ceaſe, and then it muſt be incarn'd, dryed and cicatrized after the uſual manner.

In theſe caſes a Prudent Surgeon will conceal his Fault to preſerve his Fame; but if he finds the Patient is like to run any Riſque of his Life, or there be the leaſt hazard in the Caſe, he muſt Sacrifice his Reputation to the Patients Health, and by this means make him ſome ſort of Reparation, and inſtantly lay open the Wound, if there be the leaſt danger in deferring it. If the Apertion has been too long procraſtinated, and the Tenſion, Fever and Convulſion do continue, and the Natural Heat of the Part is extinguiſhed, which is diſcovered by the Riſing of the *Veſiculæ* or little Bladders, the change of the Red into a Dark colour, tending to Livid, by the decaying and withering, and weight of the Part, and by a certain putrid Cadaverous Stench ſoon diſcernible in approaching the Patient. There is no time to be loſt, and the Surgeon muſt uſe all his endeavours to take off the Convulſion, abate the Tenſion, recall the Natural Heat, and prevent the entire Mortification of the wounded Part.

To prevent the Convulſion, Authors adviſe the cutting the Tendon or Nerve aſunder, whoſe Fibres are apt to be torn by the contraction of the Muſcle. But ſometimes even after cutting the Tendon aſunder, the Convulſion does not ceaſe. To abate the Tenſion, the ſwelling is to be Scarified to the quick, throughout its whole Extent, eſpecially in thoſe places where it is Veſicated, or the Scarf-skin ſeparated, or the Skin diſcoloured. That the Scarification is deep enough, may be known from the Patients crying out, and Blood iſſuing from the Orifice. The Scarification muſt begin beneath, and be continued up to the higheſt part of the Swelling in ſuch a manner, that the lower Angles of the upper Inciſion may interſect the upper Angles of the lower, and the Skin by conſequence ſuffer no conſtraint.

The Scarifications may be multiplied according as the Diſeaſe encreaſes, and made longer and deeper if the Gangrene do's not ſtop, in order to apply Medicines to the bottom of the putrefied Slough. All Medicines are to be applyed very hot to reſtore the Natural Heat, and ſtir up the remaining Spirits to a Vigorous Action. Fomentations may be

be made with *Venice Treacle*, diſſolved in *Spirit of Wine*, ſtrengthned with *Spirit of Sal Armoniack*, or the yellow Water made with *Quicklime*, and *Sublimate corroſive*. A Fomentation made with a good quantity of *Common Salt* diſſolved in very ſtrong *Vinegar*, with the addition of *Spirit of Wine*, *Honey of Roſes*, and *Ægyptiacum* is a good Medicine if applied hot to warm the Scarified part. Thoſe who have Experience, may compoſe variety of theſe Applications according to their Opinion of their Virtue, and dip Pledgits in them to put in the Inciſion, taking care to lay on ſome good Liniment to procure a laudable Suppuration, and a quick Separation of the gangrened and corrupted part.

This Liniment may be made of *Turpentine* waſhed in *Spirit of Wine*, with Powders of *Myrrh*, *Aloes*, *Ægyptiacum*, *Baſilicon*, *Oyl of Wormwood*, *and* St. *Johns wort*. After the inciſions are filled with theſe and other like Medicines, it is convenient to apply on the part ſome Cataplaſm, to put a ſtop to the progreſs of the putrefaction, to diſcuſs, dry, and abate Pain. This Cataplaſm may conſiſt of *Meal of Beans*, *Barley*, *Wild Vetches*, *Lupins*, boyl'd in *Oxymel* with *common Salt*, *Honey of Roſes*, *Juice of Wormwood*, and *Horehound*, Powders of *Myrrh*, *Aloes* and *Maſtich*, with a little *Spirit of Wine* added at laſt, to give the whole a ſoft Conſiſtence.

Cataplaſms are very good on theſe occaſions, tho' ſome Practitioners condemn them, upon a pretence they load the Part, ſtop the Pores, and hinder Tranſpiration; for this reaſon they prefer Compreſſes dipt in ſome of the before mentioned Liquors, with ſome Aromatick *Spirit of Wine*, with Bottles of hot Water, Bricks and Tiles applyed to the part to preſerve the Warmth. Theſe Bricks and Tiles are to be wrapt in Linen Cloth ſeveral times doubled, to prevent burning the Patient. This is the more neceſſary, becauſe the Parts being in a manner inſenſible, will endure very conſiderable burning before the Patient complain of it.

Theſe Applications muſt be renewed twice or thrice a day, to work more effectually. In the mean time the Patient muſt take ſeveral Cordial Potions; ſuch as are before preſcribed in the Cure of the *Eriſipelas*, applying on the Heart ſome Epithem of *Carduus*, *Bugloſs*, *Borrage*, *Roſe* and *Treacle Water*, *Juice of Citron* and *Nightſhade*, *Vinegar of Roſes*, Powders of the three *Sanders*, *Diamargariton frigidum*, Confection of *Alkermes*, *Hyacinth* and Troches *of Camphire*.

If all theſe Methods fail of their intended effect, and the part appears to be from little ſhivering Fits, *Nauſeas*,

and heaving of the Stomach, and malignant Vapours ariſing from the putrid Fleſh, infeſt the Heart. The only remaining remedy to preſerve the Patients Life, is a ſpeedy Amputation of the Part, the Method of performing which, I ſhall ſhew in its proper place.

REMARKS.

Fabricius Hildanus, *Cent.* 5. *Obſ.* 18. relates the Hiſtory of a certain Man of thirty Years of Age, who had endured violent Pains in the Head, in the Fits of an Epilepſy for a long time, he bled him in the Frontal Vein, upon which the Patient loſt the uſe of one of his Eyes, which remained ſhut. The pain of his Head ſometime after grew more vehement, and the Eye more inflamed to that degree, that its Membranes being corroded the Humours fell out, and the Patient for ever loſt his Sight. But what is more ſurprizing ſtill is, he was deprived of his Speech, which he afterwards recovered by the Care and Diligence of his Phyſicians.

The ſame Author, *Cent.* 6. *Obſ.* 92. relates the caſe of a Big-bellied Woman, who in the laſt Month of her going with Child, cauſed her ſelf to be bled in both Feet at the ſame time, in hopes of obtaining an eaſie Delivery, Immediately after theſe bleedings, ſhe found her ſelf in a very great diſorder, the Throes which attended Women in Labour came upon her, and that Night ſhe was delivered of a dead Child before her time was come, very narrowly eſcaping with her own Life. In the ſame Obſervation, he relates the Hiſtory of a certain Man, who cauſed himſelf to be bled twice, one time immediately after the other in both Arms, to relieve him in a Laſſitude, and Heavineſs of the Head. About three Hours after Bleeding, he found a great weight on the *Anus*, and a vehement Pain which was greater the following Night, and attempting to walk the next Day, the Pain, Inflammation and Weight encreaſed, ſtill being attended with a burning Fever, great Reſtleſsneſs, a *Nauſea*, beſides ſeveral other ill Symptoms. *Hildanus* ſearching him found a large Abſceſs, which after a Suppuration procured, diſcharged a quantity of *Pus* of an intolerable weight. This Abſceſs aſcended lengthways of the *Rectum*, quite to the *Os Sacrum*, of which he was cured without any *Fiſtula* remaining behind.

Though it be very difficult for a Surgeon to prick the Nerve on the Arm, which lies beneath the Baſilick Vein, becauſe

becauſe it muſt be a very deep Puncture which can reach it; yet *Ambroſe Parry* aſſures us, that *Charles* IX. had this Nerve hurt in his preſence, and ſuffered great inconveniences by it, for a long time after the Accidents were removed, by the Careful and Aſſiduous uſe of proper Remedies.

CHAP. XIX.

Of the Operation of the Aneuriſm.

THIS Operation is *an Inciſion of the Teguments to lay the Artery bare, and make a Ligature on it.*

THE CAUSE. There are two kinds of Aneuriſm, *the Genuine* and *Spurious*. The *Spurious* Aneuriſm is only the caſual opening an Artery by the point of the Lancet, joyn'd with a loſs of Blood iſſuing from the opened Veſſel. The *Genuine* Aneuriſm is a Collection of Arterial Blood, which forms a Swelling within the Artery it ſelf.

The Genuine Aneuriſm proceeds ſometimes from an internal, and ſometimes from an external Cauſe. The internal Cauſe of a true Aneuriſm, is the Action of ſome ſharp and corroſive Humour, which finding a way to get out of the Glands, fixes on the external Tunick of the Arteries, and corrodes and conſumes it. The internal Tunick in the mean time is exceedingly dilated, and diſtended by the conſtant repeated impulſe of the Blood, and the Fibres of the external wanting ſtrength to reſiſt their effort of extruſion, they at length break forth, and form this Aneuriſmal Tumour. All parts of the Body are ſubject to Swellings of this kind, which are more frequent in decay'd emaciated Subjects where the Blood is more Saline, than in corpulent fat People.

The external Cauſe is ſome Accidental Punction of the outer Coat of the Artery, with a Lancet or ſome ſuch like Inſtrument, or ſome Fall or Blow received, or perhaps ſome more than ordinary ſtraining the Voice, in crying or holding the Breath in Labour, any of which recited Cauſes, are ſufficient to ſtrain or break the Fibres of the external Coat, and the Blood continually ſtriking on the weakned place, produces an Aneuriſm.

The

The Spurious Aneuriſm is cauſed by the opening of an Artery which lets out the Blood, which after Extravaſation, lodges in the Poroſities of the Fleſh and Skin, and there forms a Livid Tumour, or is quite evacuated if the Teguments are entirely divided by the Lancet.

THE SIGNS of a Genuine Aneuriſm, are an external Swelling, with a ſenſible Pulſation, the Swelling is ſoft, and if preſt with the Finger ſubſides inſtantly, returning when the preſſure is removed. There is no diſcoloration of the Skin, becauſe the Tumour is ſupported by the Blood circulating through the Arterial Channel.

This Tumour ſometimes equals the bigneſs of a Cheſtnut, and ſometimes an Egg. Theſe Swellings ſometimes break of themſelves, and ſometimes the Patient carries them with him to his Grave without burſting; becauſe the Artery growing Callous in the place where it was moſt of all weakned, is by this enabled to ſuſtain the utmoſt ſhock of the Blood. Theſe Calloſities like thoſe in *Fiſtulas*, proceed from the moſt Saline and Pungent Particles of the Blood, which lodging in the Pores of the Arterial Coats, mix with their Nutritious Juice, and harden it. Sometimes they proceed from the Blood, which being in a perpetual Fermentation, and paſſing through the Swelling, dries and hardens it, by rarefying and waſting that Humidity which kept its Tunicks wet. The Signs of a Spurious Aneuriſm, are the deep beating of the Artery, the almoſt livid colour of the Skin, the Tumour not riſing ſo high as the true poſſeſſing a greater ſpace, and not ſo eaſily yielding to the Finger, as the true Aneuriſm, and when the Artery is opened, the Blood coming out with impetuoſity and force.

The OPERATION.

The Operation is performed in the ſame manner both in the True and Spurious Aneuriſm, if preceding Methods prove ineffectual. Place the Patient in a Chair, let a Servant hold the Arm extended, then lay a good Compreſs round the Arm above the Swelling, and make a Ligature over this, which you may ſtreighten at pleaſure, by turning round a ſmall ſtick called the Turniket or Turnſtick. The advantage in laying a compreſs under the Ligature, is to make it leſs painful, more equal, and prevent pinching the Skin. The Artery may be compreſſed to any degree required, by turning round the Stick. When the Artery is ſufficiently compreſſed, take the Patients Arm with your Hand below

below the Swelling, and make an Inciſion with a Lancet in the other Hand. This Inciſion muſt be made lengthways, according to the courſe of the Veſſel, beginning below and ending above, and ought to be too large, rather than too little, to lay the Artery bare. The Tumour being opened evacuate the coagulated Blood with the Finger, and if there be any coherences, cut them with the crooked Sciſſars, to clear the Wound from the concreted Blood, and of all other extraneous Bodies, which ſometimes are found in Aneuriſms of long ſtanding. You muſt looſen the Turniket from time to time, to diſcover the Orifice of the Artery, and then ſeparate it from the Membranes, which connect it to the neighbouring Parts; the Separation muſt be made with a Spatula, for fear of cutting it with an Inciſion Knife. Then hold the Artery with a Hook, to free it from its other Ties, and when it is clear, paſs a crooked Needle with a waxed Thread under it, cut the Thread, and draw out the Needle. The point of the Needle muſt be blunt, to avoid pricking the Part. After this make a Ligature on the ſtrongeſt part of the Artery; firſt with a ſimple knot, and then place a Compreſs over that ſtrengthned with two other knots on the Compreſs may be omitted if it ſhall be thought inconvenient. A like Ligature muſt be made on the inferior part of the Orifice, to hinder the ramifications of the Arteries from diſcharging any Blood. The Artery intervening between the two Ligatures muſt be left uncut, becauſe the two ends of the Artery contracting and ſhrinking within the Skin, may thruſt the Ligature off, which would be more dangerous than the Aneuriſm it ſelf, ſince it would be difficult to find the ends, and tye them.

THE DRESSING. Lay on the Wound Doſſils arm'd with Reſtringent Powders, an Emplaſter and a Compreſs. Lay a great ſquare Compreſs the whole length of the Arm, following the Courſe of the Artery quite from the Swelling to the Arm-pit, and keep all on with a Bandage made after this manner.

Take a Roller or Fillet of more than two inches broad, and an Ell and half or two Ells in length (more or leſs according to the bigneſs of the Subject) apply one end beneath the Elbow, making two rounds about the Arm, then aſcending Spirally (ſo as to leave one third part of the neather Roller bare in each Turn) in paſſing over the Tumour compreſs it a little by ſtreightning the Roller, and continue to aſcend in the ſame manner to the Arm-pit, then turn it round the Breaſt, and faſten it with Pins. The Emplaſter and Compreſs muſt be

be about three or four inches broad, long enough to go round the Arm, and be ſlit a pretty way at each end, leaving a part plain and undivided in the midſt. This Figure is convenient to prevent wrinkles; The Bandage muſt be kept on three or four Days without undoing it, and in the firſt Dreſſing you muſt be careful to take the Pledgits very gently off.

THE CURE. Place the Patients Arm a little bended on a Cuſhion, extending it now and then for fear it grow ſtiff. Dreſs the Wound conſtantly at leaſt once a Day, continuing the uſe of Reſtringent Powders, as *Terra Sigillata*, *Bole Armoniack*, *Colophonia*, *Dragons Blood*, *Frankincenſe*, and *Laudanum*. After you are once ſecure, the Veſſels will not re-open, Suppurate the Wound with ſome Digeſtive, made with *Turpentine* and *Yelks of Eggs*, and after a laudable Digeſtion obtained, deterge it well, and Cicatrize it. The Patient at firſt muſt be allowed only ſome few Liquids, for fear any Putrefaction ariſe from Repletion, and the uſe of ſolid Aliments, and their Wound muſt be treated according to the uſual method of Practice.

The Marks or Signs by which it is known that the Artery is hurt, is the Reſiſtance againſt the point of the Lancet, the elevation and violent beating communicated to the Vein by the Subjacent Artery, the ſpringing out of the Blood by ſeveral diſtinct Jetts, as happens in a wounded Artery; but with this difference, that it is not ſo lively ſparkling or florid, and is not projected to ſo great a diſtance. If any of theſe unfortunate Accidents happen, and you are deſirous to have the Aneuriſm cured without Operation, bleed the Patient to abate the rapid Motion of the Blood, and put a ſtop to the progreſs of the Tumour, apply on the Artery a ſmall Compreſs with half a Bean wrapt up in it, lay over this another Compreſs ſomething larger, and then over that more ſtill gradually encreaſing, to compreſs the part more equally; around the Wound apply Defenſatives, and keep all on with the Bandage uſed in the Aneuriſm, leaving on the Dreſſings as long as poſſible. When the Patient begins to regain his Strength, you muſt bleed again, leaſt the Veſſels replete with Blood preſs on the weak part of the Artery, and occaſion a Tumour.

In a Spurious or Baſtard Aneuriſm, the Blood is extravaſated under the Teguments, and the moſt expeditious way to anticipate the Lividity and Gangrening of the part and the uſual Accidents attending theſe Caſes, is to proceed inſtantly to Operation. But if the Patient will not endure this, apply Compreſſes and proper Diſcutients on the part, and have Recourſe to frequent Bleeding.

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The external Aneuriſm is not near ſo Dangerous as the internal, and it is often impoſſible to treat it, and even ſo much as to diſcover it. The following Medicines are good in external Aneuriſms. ℞. *Powder of Sumach, Hypociſtis, Acacia, Dragons Blood, Aloes, Frankincenſe,* ā ʒi. *Beat all with the White of an Egg, to the conſiſtence of an Emplaſter,* let this be applyed to the part to heal the Wound, which muſt be well cleanſed from all the Grumous Blood lodged in it. A plate of Lead applyed alone, or beſmeared with the Juyce of *Plantain*, and bound on ſtreight, puts a ſtop to the Growth, or Cures an Aneuriſm quite, if applyed in the beginning. In theſe Palliative Cures, the Patient is often obliged to carry this Plate about him all his Life.

Fabricius Hildanus cured after the following manner, a large Aneuriſm equalling an Egg in bigneſs, hard and pale coloured, with an exceeding great Pulſation, and hindring the Patient in the free extenſion of his Arm. In the firſt place he ordered the Patient to obſerve an exact *Regimen*, then applyed on the Swelling *Emp. de Cicuta*, and gave the following Clyſter. ℞. *Roots of Marſhmallows, Leaves of the ſame, Violary, Mallows, Pellitory of the Wall, Herb Mercury,* ā *one Handful, Flowers of Chamomil and Melilot,* ā *half a Handful. Boyl all in water to the conſumption of a third part, Diſſolve in the ſtrained Liquour Benedict. Laxativa,* ʒi. *Honey of Mercury,* ʒii. *Common Oyl,* ʒiij. *Salt one pugil. Mix theſe for a Clyſter, and ſo give them.* The next Morning to diſperſe the Melancholy Humour, predominant in the Patients Body. He preſcribed the following Julep. ℞. *Roots of ſharp-pointed Dock, Polypody of the Oak, Petroſelin* ā ʒi. *Agrimony, Speedwell, Dodder, Fumitory, Hop-tops, of each of the Cordial Flower* ā. *one Handful, Liquorice* ʒi. *Aniſeſeeds, ſweet Fennel Seeds,* ā ʒiß. *Boyl theſe Ingredients in a competent quantity of Water, till reduced to one third, ſtrain this, adding to each pound of this Decoction, Syrup of Fumitory, and* de Epithymo, ā ʒij. *Cinnamon Water,* ʒiß. *and let the Patient take of this Julep every Morning warm.* Next he preſcribed the following purging Potion. ℞. *Of the Decoction above preſcribed,* ʒviij. *Sena well cleanſed,* ʒi. *beſt Rhubarb,* ʒij. *Diſſolve in a Moiety of this Infuſion, Solutive Syrup of Roſes,* ʒi. *Diaturbith with Rhubarb,* ʒi. *Mix this for a purging Potion*; the next Morning returning to the former Julep again each day. He renewed the Application of the *Emplaſtr. de Cicuta* on the Tumour. After this he gave him a Purgative Potion

Potion made of the remaining Moiety of the *Infuſion of Sena and Rhubarb, with the Addition of Confectio Hamech*, ℥ß. *extract of the Bark of Eſula*, ʒß. *Cinnamon Water*, ℥ß. This Potion he gave him upon the third Day after the firſt Purge. He tells us this Purge wrought ſo violently, and with that good Succeſs downwards, that the next Morning there was no appearance of any Aneuriſm or Pulſation in the Part. Then he applyed this Emplaſter, ℞. *Empl. Diachalciteos* ℥ij. *Powder of Maſtich, Red Roſes, Myrtle, Roots of the greater Conſound*, ā. ʒi. *Make theſe into an Emplaſter, with a ſufficient quantity of Roſe Water*; and laſt of all he applyed a knob of Linen on the Tumour, binding this ſtreight on to compreſs the Swelling, and the Aneuriſm was cured.

There remains one neceſſary caution to be given the Operatour in this place, and that is, to extend the Patients Arm at times and by degrees, leaſt in keeping it too much bent, a deep ſtrong *Cicatrix* be formed, which retains it bent the whole time of his Life.

REMARKS.

Riverius Obſ. 34. relates the Hiſtory of a certain Man of 50 Years of Age, of a very Melancholy complexion, who had a large Tumour on the right Clavicle, about half the bigneſs of an Egg, of the ſame colour with the Skin, with a very great Pulſation in it, which induced him to think it an Aneuriſm. The Patient dying, he found the aſcending trunk of the Aorta from the Heart to the Clavicle dilated, enough to receive a Pullets Egg in its Cavity, with its Tunicks very thick and Cartilaginous.

To regain the free Motion of the Arm after the preceding method is compleated, it is neceſſary to oblige the Patient to extend and bend his Arm, and to turn round his Fiſt to prevent a Collection of a Glairy ſubſtance in the juncture of the Elbow, and too deep a *Cicatrix*, which ſometimes has happened in Perſons who have remained Lame all their Lives after for want of due precaution.

If the Aneuriſm has been for a long time neglected, and the Operation deferred, the Bandage muſt not be too ſtreight, and muſt more frequently be taken off and Compreſſes applyed, which ought to be firſt well ſoaked in ſome *Aromatick Wine, with Venice Treacle, or Spirit of Wine, with Volatil Salt of Sal Armoniack*, or any hot or Spirituous Liquors, proper to revive the languiſhing Heat and Spirits of the Part. In ſhort, all Circumſtances muſt be obſerved, which may

may conduce to prevent a Mortification of the Part after the Ligature is made.

Bartholine Cent. 4. *Hiſt.* 41. tells us of an Aneuriſm on the Breaſt of a certain Man in *Naples*, which the Surgeons refuſing to meddle with, Tranſlated it ſelf behind, and the Patient became hunch-backed.

CHAP. XXI.

Of the Trepan.

TRepanning is *the opening the Skull, to evacuate* Pus, *or extravaſated Blood lodg'd on the* Dura Mater.

THE CAUSES. Fractures of the *Cranium* or Skull, are the moſt ordinary occaſions of performing this Operation. Theſe are of two kinds, Inciſion or Cutting, made by an Inſtrument with a ſharp edge, or Contuſion by ſome blow with a blunt Inſtrument or Fall.

Hippocrates enumerates five kinds of Fractures of the Skull, *viz. Fiſſure, Contuſion, Inciſion, Depreſſion*, and *Contrafiſſure*; but in my Opinion, theſe may be commodiouſly enough reduced to two *Species*, of which Inciſion, Fiſſure and Contrafiſure, make the firſt Member, and Contuſion and Depreſſion the ſecond.

There are thtee ſorts of Inciſion: In the firſt the Blow is perpendicular, and the edge of the Inſtrument enters the Skull, and without taking off any portion of it, makes an impreſſion only in it. This by the *Greeks* is called *Eccopè*, by *Hippocrates Hedra*, and by the Latin Writers, *Veſtigium* or *Sedes*, and in *Engliſh* may be properly enough called an *Impreſſion*. In the Second, the Blow is more oblique, and enters deeper into the ſubſtance of the Bone; but ſtill without taking any part off, and this is termed *Diacope*. In the laſt kind, a piece of the Skull is entirely cut off, and this is named *Apokeparniſmos*.

Contuſions are divided into two kinds; *viz.* Thoſe which do not, and thoſe which do deſtroy the Continuity of the Part.

The Firſt is called by Hippocrates *Thlaſis*, and is a ſimple Depreſſion of the Bone, and not a real Fracture. This happens

happens in Children principally, whoſe Bones are pliant and flexible, and eaſily give way without breaking, like Pewter Pots, or any other Veſſels made of malleable Metals.

The Second only, where there is a diviſion of the Bone, can in a ſtrict ſence be termed a Fracture.

When the Bone is divided, and the Surface notwithſtanding remains equal, the Fracture is named a Fiſſure. This if it be very viſible is called *Rogme*, if ſcarce ſeen, or wholly imperceptible, *Trichiſmos* or a Capillary Fiſſure.

When the equality of the Bone is deſtroyed, as well as its continuity, and ſome fragment of the *Cranium* diſplaced, the Fracture by Hippocrates is called *Eſphlaſis* or *Euthlaſis*, of which he reckons up three kinds: *Ecpieſma* when the *Cranium* is depreſſed, and ſome Splinter of the Bone ſticks in, or preſſes on the *Dura Mater*. *Angiſoma*, when there is a Depreſſion, and the Fragment broken off lies under the entire Bone. *Camaroſis*, when either one end of the Fragment is depreſt, and the other raiſed, or both ends are depreſt, and it riſes in the midſt, leaving an Arch as it were vaulted over, from which this *Species* derives its Name.

In Infants, an Arch ſometimes happens to be made by a Depreſſion of the Bone, without a Fiſſure, which ſometimes by its Elaſtick virtue, returns to its priſtin State; ſometimes the exterior Table of the Skull alone, returns to its Natural State, and the inner remains depreſt. Theſe Caſes can only happen in very young Children, while the *Cranium* is Membranous before Oſſification is compleated, and is not poſſible in Adults, whoſe Bones are dry and brittle.

Hippocrates ſpeaking of a Contrafiſſure, pretends it may happen after three ſeveral ways, *viz.* In the ſame Bone when the upper part is ſtruck, and the lower broken; or the outer Table receives the blow, and the inner ſubjacent Table is broken, or in different Bones, as when the Occipital Bone is ſtruck, and the Fracture is in the Coronal.

It is very improbable that a Contrafiſſure ſhould happen in moſt ordinary Skulls, and any Perſon who conſiders that the ſeveral parts of this Bone are not continuous, but a multitude of pieces ſeparated by Sutures, muſt needs admit it to be very difficult, to ſuppoſe a Fiſſure propagated from one to the other, and be convinced thoſe Inſtances alledged by that Author, are not very much to be relyed on.

But

But I profeſs here I would not be underſtood to arraign the Faith of that Great Man, or inſinuate a ſuſpicion of his deſign to impoſe on Poſterity. That ſtrain of Integrity and Candour which runs through every part of his Writings, is too viſible to charge him with a Crime of this Nature. I make no doubt, thoſe Inſtances which he mentions, really happened in the ſame manner as they are related; but without queſtion, in thoſe Perſons the *Cranium* was one continuous Bone, as in ſome Bodies it has been found to be without any preceptible Sutures in it. Admitting this to be true, it is not difficult to conceive that the left Parietal receiving a ſmart Blow, and yielding a little, may communicate the Motion to the Right, and that be crak't, eſpecially if we ſuppoſe it to be of unequal thickneſs, and weaker than the other.

If Contrafiſſures happen in Skulls divided by Sutures, it is rational to believe they proceed from ſome Fall, which the Perſon who received the Blow, might happen to have had during the time he remained Senſeleſs. Now the Wound making a viſible Diviſion of the Teguments, without any Fracture of the Bone, and the Fall on the contrary making a Fiſſure of the Bone without hurting the Teguments, it is very poſſible the Surgeon not being informed of the Patients Fall, may impute this Fiſſure to the firſt Blow. And thus it is very probable, *Hippocrates* might be led into this Miſtake. Nor can it be thought ſtrange, that a Fracture of the Skull ſhould be made, without a Wound of the Teguments, ſince every days Experience ſhews us, That Arms, Leggs, and other Limbs are daily broken, without any Diviſion of the Skin.

If it ever happen, as ſome Practitioners pretend, that the lower Table of the Skull is broken, and the upper notwithſtanding remains entire, this odd effect muſt be explained after this manner. Between the two Tables of the Skull, there is a viſible interſtice fill'd with Marrow, and intertexed with Bony Fibres, which middle Subſtance is very ſpungy and porous; now if it be true, as moſt undoubtedly it is, that there is no *Vacuum* in Nature, the Porofities of this Subſtance muſt conſequently be filled with ſome Matter or other; which admit to be the Air; it will then follow, that when a Man receives a ſmart blow on the Head, and the upper Table yields without breaking, the included Air is compreſſed, and impetuouſly ſhocks the inner Table, which if it be ſo compact and hard that it cannot obey, muſt inevita-

bly crack. The ſame reaſon may be alledged, in favour of thoſe who eſpouſe the Doctrine of Contrafiſſures.

Matter may ſometimes be extravaſated on the *Meninges*, though the upper Table of the Skull remain entire; for inſtance, when the Marrow contained in the interſtice between the Plates, by ſome Accident being corrupted and growing Acrimonious, corrodes and cariates the lower Table, and ſo diſcharges it ſelf on the *Dura Mater*.

THE SIGNS. Fractures of the Skull are for the moſt part viſible to the naked Eye, and a ſenſible Fiſſure appears in the Bone, when the Teguments are removed.

If no Fiſſure appear, and there is ground to ſuſpect one, tho' it be ſo ſmall as to eſcape the ſight, the uſual practice is to lay Ink on the Part, and after ſome little time to wipe it off, for then if ſuch Fiſſure be, there will appear a black Line. This Experiment cannot be practiſed in a Fiſſure of the lower Table, and no aſſurance can be obtained in this matter till Symptoms appear.

The Symptoms which diſcover the *Dura Mater* and Brain, do ſuffer in Fractures of the Skull, are various, and ſhall be recited in their proper places.

If any Splinters of the Bone be broken off, they preſs on or lacerate the *Dura Mater*, and ſometimes wound the Brain it ſelf, and cauſe an extravaſation of Blood in it. When this happens, and Symptoms diſcover the Brain is affected, and the Surgeon cannot evacuate the Matter lodg'd on the *Dura Mater*, he muſt proceed to Operation. But if the Bone alone be concerned, though there be a Comminution or part of it cut off, yet if no Symptoms appear, it is ſufficient to Dreſs the Wound after the uſual manner.

If the *Dura Mater* be inflamed, from whatever cauſe this proceeds, there is a pain and oppreſſion of the Part, the Eyes are bloated and inflamed, the Face is Red and Swoln, the Patient is *Comatoſe*, there is a Fever kindled, attended with a hard Pulſe and *Rigors*, the Patient voids Blood out of his Noſe, Ears or Mouth, which laſt happens in great Commotions of the Brain.

If there be any pointed Splinters, there is ground to fear they may pierce through the *Dura Mater*, and Wound it. If there be a depreſſion of the Skull; and ſome fragments be broke off, there is reaſon to apprehend an extravaſation of Blood, and a Compreſſion of that Membrane. If the

Fracture

Fracture be large, and made with a ſharp Inſtrument, it is moſt undoubtedly cut.

If there be a Fiſſure of the Bone, the Patient be *Comatoſe*, and Blood voided by the Mouth, Ears or Noſe with a ſenſible Fever, as was noted above, there is Matter lodg'd on the *Dura Mater*.

The Weight or Oppreſſion proceeds from a great quantity of Matter which preſſes on the Brain, and its Arteries which convey Blood into, and dilate it:

The Swelling and Inflammation of the Eyes, proceed from the Inflammation of the *Sinus* in the bottom of the Brain, which are productions of the *Dura Mater*. For theſe *Sinus* receiving all the Refluent Blood from the Veins of the Eye, when their Mouths are inflamed, muſt of neceſſity not receive it ſo faſt as it is conveyed in by the Arteries, wherefore the Globe of the Eye receiving a conſtant ſupply of Arterial Blood, while the Venal do's not paſs off, muſt needs be diſtended and inflamed.

The Inflammation of the Eye-lids, ariſes from the Inflammation of the *Pericranium*, their internal Membrane being a Continuation of that, and the Inflammation of the *Pericranium* it ſelf, proceeds from the Pain caus'd by the Blows and Bruiſes it receives.

It is obſervable, that the Inflammation of the Eyes do's not follow immediately upon the Hurt received; but at ſome diſtance of time after, ſometimes upon the third, fourth or fifth Day. For the Inflammation do's not ſpread it ſelf to its full extent of a ſudden, but gradually; and there is a great Tract intervening for it to paſs thro', before it arrive at the Eyes.

The Bloated Swoln Face, proceeds from the Inflammation of the *Dura Mater*, which ſtraitning the Mouths of the Internal Carotid Arteries, forces part of the Blood (which would be conveyed to the Brain by thoſe Channels) to regurgitate and paſs off by the external Branches of the ſame Arteries, to the ſeveral Parts of the Face.

The *Coma* or Doſineſs, proceeds from an interruption in the Circulation of the Blood, which Stagnates in the Veſſels of the *Dura Mater*, and compreſſes the Brain, and by this means cloſing the *Meatus*, intercepts the paſſage of the Spirits. Now if waking ariſes from an open free Communication, when this ceaſes by any occaſional cauſe, which compreſſes the Brain, and cloſes the Pores, its contrary Sleep or Doſineſs muſt unavoidably enſue.

The Fever proceeds from the extravaſated Matter, firſt corrupting, and then being abſorbed into the Blood. One drop of *Pus* mixed with the Maſs, is ſufficient to produce this effect, and experience ſhews us, that in Abſceſſes of the Lungs, nay of the external Parts too, the Patient is never without a Fever.

The hard deep Pulſe proceeds from a defect in the free circulation of the Blood through the Brain, the impediment it meets with here, preventing its rapid deſcent to the Heart, and its plentiful diſcharge into the *Aorta*.

The *Rigor's* or Shivering Fits, proceed from the Acrimony of the extravaſated Matter lodg'd on the Membranes. This Acrimony is contracted by its long Stagnating and Putrefying there, and when it pricks the Membranes of the Brain, cauſes Convulſive Motions, and puts the Animal Spirits into a tumultuous and diſorderly State, and driving them in a confuſed manner through the Nerves into the Muſcles, cauſes Shiverings, Twitchings, and other irregular Accidents.

The Falling proſtrate on the Ground after a Blow received, proceeds from a Concuſſion of the whole Brain, which puts the Spirits into great Confuſion and Diſorder. Now the Spirits flying to and fro without the Direction of the Mind, leave thoſe Nerves which convey them into the Muſcles, which ſerve to keep the Body erect. Nay if it be admitted that a greater quantity of Spirits are tranſmitted, this diſproportion alone is ſufficient to explain this effect, ſince there cannot be an equal contraction of the Muſcles to balance the Body.

The loſs of Senſe, and a due perception of Objects, proceeds from a defect in the Tranſmiſſion of the Spirits, which are not at all conveyed by the Nerves to their proper Organs, or at leaſt in a confus'd diſorderly manner.

The Giddineſs or *Vertigo* ariſes from a violent and irregular Motion of the Spirits, which whirling about the Optick Nerve, impreſs the ſame motion on the Rays of Light, proceeding from the Object, and depicting it on the *Retina*. This cauſes the Objects themſelves to appear as whirling round, ſince the Mind cannot have any Image of a viſible Object, except by the impreſſion which its Rays make on the Animal Spirits, reſiding in the Optick Nerve.

The involuntary coming away of the Urine and Excrement, proceeds from a defect in the Spirits, ſent to the *Sphincter* of the Bladder and *Anus*, which are not potent enough

nough to conſtringe them for the exerciſe of their retentive Faculty.

The *Deliquium* or Swooning ariſes from a want of Spirits, which are not ſent in quantity enough to the Heart, to make ſo vigorous a contraction as is neceſſary to drive the Blood into the extreme Parts.

The Vomiting proceeds from the impetuous ruſhing of the Spirits into the Stomach, whoſe influx being for a time ſuſpended, and they collected in the Brain, at length reſuming their ordinary Courſe, force their way through all oppoſition, and violently entring the Part, excite this Symptom. If the Vomiting follow immediately on the Blow, it is a ſign the Concuſſion was not very great; On the contrary, if the Vomiting happen after ſome time, it is a ſign that the Concuſſion is violent, becauſe the greater the Shock is, the greater by conſequence the Inflammation and Obſtruction, which it produces muſt be. But when the Shock is ſlight, and theſe are not very conſiderable, the Spirits do not ſtand in need of ſo vehement an Effort to remove thoſe Obſtacles, which impede their return to the Brain. In all great Concuſſions of the Brain, the Patient Vomits Bile; but in leſſer, the Stomach only throws off the Aliments in its Cavity; the Reaſon of the difference is, that in all great injuries the Shock extends to the Gall-Bladder, which diſcharges that Sharp Liquour into the Stomach, and irritates it to a Convulſive Motion, whereas in the other, the diſorderly Motion of the Spirits terminates in the Stomach.

The Brain it ſelf ſuffers by extravaſated Matter, which either proceeds from the Rupture of ſome Veſſel in great Concuſſions, or ſome Cut or Blow which pierces thro' the Membranes; or laſtly, Matter which inſinuates it ſelf thro' them, and tranſlates it ſelf into the Brain. The Symptoms which demonſtrate extravaſated Matter in the Brain, are a Fever with Paroxyſms, Shivering Fits, Vomitings, Convulſion, *Delirium*, Lethargy, Apoplexies. In this caſe oftentimes the Liver or Lungs apoſtemate, which is perceived by a conſtant Pain on the Side or Region of the Liver, and frequent *Rigors*.

We have above aſcribed the Fever to the admixtion of the purulent Matter, with the Maſs of Blood and the Fits, to a greater quantity than ordinary diſcharged into it. For the purulent Matter which contracts an Acrimony by its detention in the Brain, becomes a ſort of Ferment, which upon

its mixture with that Vital Liquor, augments, its Heat and Motion, and as often as a new ſupply is poured in, muſt conſequently cauſe a new Commotion. This acrimonious Matter mixt with the Blood in its Tour through the various Parts of the Body, pricks the Nerves, moleſts the Stomach and Membranes. Sometimes paſſes into one Muſcle, then into another, and cauſes Shiverings, Vomitings, and various diſorderly Convulſive Motion; and when theſe effects appear, they demonſtrate the Blood and Spirits to be contaminated, and that a *Delirium* and Lethargy may be ſoon expected.

The *Delirium* proceeds from the Hurry and Diſorderly Motion of the Blood in the Paroxyſm of the Fever, and the corruption of the Brain by extravaſated Matter, which penetrates into its ſubſtance.

The Lethargy is the effect of a great quantity of Matter extravaſated, which being vehemently agitated and corrupted to the higheſt degree, its more ſubtil and fine parts are carryed off by the rapid Motion of the Blood, and the more heavy and unactive part left behind, which falling on the Glandulous part of the Brain, blocks up the Pores, ſtops the *Oſtiola* of the Glands, and intercepts the paſſage of the Spirits; and the Brain being thus oppreſt and obſtructed, a profound *Sopor* muſt neceſſarily enſue. On the contrary, when the extravaſated Matter begins to Diſſipate, and the heavy load which oppreſſes the Glands, is in part driven away by the impulſe of new Blood, the Spirits throw themſelves with great impetuoſity and diſorder into the Parts. And this is the reaſon why *Deliriums* and Lethargies ſucceed each other by Turns. In Lethargies of this kind, the Patients Eyes are commonly open, and very much diſturbed.

The Apoplexy proceeds from the impetuous Motion of the Blood to the Brain, and the exceſſive quantity of extravaſated Matter, which by its weight oppreſſes the Brain, obſtructs the paſſage of the Spirits, and forces the *Sinus* of the *Dura Mater* to regurgitate on every ſide, and drive back the Blood flowing into them and the Veins, by the Arterial Channels. This oppreſſion and diſtention of the Brain, deſtroys all the Animal Functions, and ſoon puts a Period to the Patients Life.

Abſceſſes of the Liver or Lungs enſuing after Wounds of the Head, are the effects of a Tranſlation of the Matter, which is firſt abſorbed by the Maſs of Blood, and after depoſited in thoſe *Viſcera*.

Wounds

Wounds of the Brain are ever moſt dangerous, by how much nearer they approach the *Medulla oblongata*; ſince the Nervous Filaments which enter the white ſubſtance of the Brain, are in danger of being cut.

A Fracture made with a ſharp Inſtrument is not ſo dangerous, as if made with a blunt one, or ſome Fall; for all cutting Inſtruments do not make any great concuſſion of the Brain, the injury is confin'd to the Part which the edge enters; but Falls and Blows ſhake the whole Brain, burſt a thouſand ſmall Nervous Filaments, and ſometimes Wound the Teguments, break the Skull in divers places, and ſeparate the *Dura Mater* from it by the rudeneſs of the Shock.

If the Wound be made with Fire-Arms, and hurt the Brain or *Dura Mater*, it is deſperate; for this rarely happens without taking off part of the Subſtance of the Brain, and the greatneſs of the Contuſion is always attended with a ſpeedy putrefaction. But oftentimes when the *Cranium* only is hurt, the Wound is not Mortal.

In Wounds of the Head, we may conclude there is a Fracture of the Skull, if the Symptoms appear, tho' no Wound be in the Teguments. For as I remarked above, theſe being pliant and extenſible, may give way to the Blow without being divided by it, but the Skull which is hard and brittle, eſpecially in Adults, muſt neceſſarily crack upon a violent Blow. For this reaſon Great Maſts of Ships are made of diverſe Pieces, that each may be more free to yield to the force of the Wind; whereas if they were made of one piece only, it muſt be very thick to make a ſufficient reſiſtance, and would be eaſily broken. Thus Swords may be broken without hurting the Scabbard which contains them.

In all Prognoſticks concerning Wounds of the Head, great regard is to be had to the Patients Habit of Body, and the Violence of the Blow. If there be a Fiſſure only, it is not ſo dangerous as when ſome Splinters are broke off, and preſs on, or prick the Subjacent Membrane, eſpecially if they hang together, and lie one over another; for thus they make a ſtronger Compreſſion on the Brain. Beſides when the Skull is broke in this manner, there is ground to believe the Blow is very violent, and there is a great Concuſſion of the Brain, which is never without danger. If the *Dura Mater* be torn by any Splinters of the Bone, the extravaſated Blood and the Inflammation, render the Wound dangerous.

Great Commotions of the Brain are very dangerous, becauſe in the Univerſal Shock there is a diſruption of ſeveral Veſſels in diverſe parts, and it is impoſſible to diſcharge and purge it from that extraneous Matter which lodges in it, putrefies and corrupts its ſubſtance, and in the end proves Fatal to the Patient.

If Vomiting happen in the time of a *Delirium* and Lethargy, it plainly ſhews, that the Spirits which animate the Brain, have quitted their Poſt, and abandoned that Part to throw themſelves into the Stomach, and this is a mortal Symptom.

Grinding of the Teeth demonſtrates, that the extravaſated Blood putrefies and corrupts the white Subſtance of the Brain.

Wounds in the Cortical part of the Brain are not Mortal, eſpecially if the Aperture of the Skull be large enough to admit of the application of Medicines to the parts concerned. But if the Wound penetrate the White Subſtance, it is ever Mortal; for this is compoſed of an infinite multitude of Nervous Filaments, which being once divided, Death muſt inevitably follow. Beſides great Branches of Arteries lie concealed in the anfractuoſities of the Brain, which muſt neceſſarily be cut before any Medicaments can be applyed, upon whoſe Diviſion an irremediable Flux of Blood will enſue.

It is proper before we proceed farther, to enquire in this place, if it be neceſſary to apply the Trepan in a ſimple Fiſſure of the Skull. To which I anſwer, Fiſſures of the Skull ſeldom happen without affecting the Subjacent parts, which pleads for the uſe of the Trepan in a ſimple Cleft: However in this Caſe it is moſt adviſeable to wait till Symptoms appear, ſince the upper Table may be cleft, and the lower remain entire.

In Fiſſures of the Skull, a Tenſion of the *Dura Mater* very often enſues, becauſe this adheres to the Skull by a multitude of Veſſels, which ſupply the inner Table with Nouriſhment, and an infinity of Filaments which paſs thro' the Sutures, eſpecially in Young Bodies. The Tenſion of the *Dura Mater* is often followed by an Inflammation, becauſe the Veſſels cannot remain long in this State without being broke and diſcharging Blood, which by its Stagnation grows Acrimonious, pricks and moleſts the Membrane, and creates an Inflammation, which ſometimes ends in a Mortification.

If

If in Fractures, Splinters of the Bone offend the *Dura Mater*, the Patient ought to be trepann'd without farther delay (to prevent all Accidents which may arise from extravasated Blood) and the fragments of the Bone removed.

If both Tables of the Skull be broke, the Operation must be made to prevent Accidents, though none as yet do appear, for it is impossible both these should be broke, without any extravasation on the *Dura Mater*.

It may be made an enquiry in this Place, if (after a blow on the Head) the Skull appear entire, and yet by the Symptoms it be evident there is Matter extravasated on the Brain, whether in this case it be advisable to apply the Trepan. There are some Practitioners who are for the Negative; alledging, when the *Cranium* is whole the Symptoms may arise from a great Commotion of the Brain, and it is impossible to determine the Place where the Matter is lodged. Others pronounce it necessary to Trepan if any of the Symptoms appear, and the Patient feel a fixed Pain in his Head. For my private Opinion, I must declare for the latter; for if this extravasated Matter remains undischarged, the Patient in all probability must be killed by it. Again, if you do not find Matter precisely at the place of the Aperture, the Head may be placed now on one side, now on the other, and the Patient obliged to hold his Breath, shut his Mouth and Nose to compress the *Dura Mater*, that the Matter may be evacuated.

Wounds of the Head are more or less Dangerous, according to the places in which they are. Fractures of the Occipital Bone are very dangerous, because the *Cerebellum*, *Medulla oblongata*, and Lateral *Sinus*, possess that part of the Head. These parts must inevitably suffer great commotion, and be much shattered, because the Occipital Bone requires great Violence to break it. Fractures on the top of the Head, and in the place of the Fontanel are very dangerous, because the Bones in those parts are very thin, and the blow being for the most part perpendicular, is very smart. The Danger do's not in this case depend on the Brain, which lies beneath the Bone, because we have diverse Instances of loss of Substance in these parts, and the Patient notwithstanding has been successfully cured. Fractures in the Sutures are more dangerous than in the other parts, by reason of the numerous Filaments and Vessels which are apt to be broken and spill the Blood contained in them on the

the *Dura Mater*. Fractures on the *Sinus* over the Eye-brows are very inconvenient, and difficult to Cure, becauſe theſe *Sinus's* being lined with an infinity of ſmall Glands, furniſh matter perpetually for Suppuration.

When after a due and exact conſideration of all Symptoms, it do's appear there is *Pus* extravaſated on the *Dura Mater*, there is a neceſſity of proceeding to the Operation; but becauſe it may be both difficult and hazardous to undertake ſo nice a matter as this is, without an exact knowledge of the Structure of the Skull; I ſhall before I deliver the Method of performing it, premiſe a deſcription of its Compoſition and Parts.

Of the Structure of the Cranium.

The Cranium or *Skull, is a Bone compos'd of diverſe Pieces, joyned togethert in a moſt Artful manner, ſo as to form a Cavity to contain the Brain, and defend it from external injuries.*

Nature has not made the Skull one entire Bone, but formed it out of ſeveral Pieces, the better to enable it to reſiſt exterior Hurts, to which it is expos'd, and to prevent any Fracture extending too far upon a blow received. Mechanicks ſeem to imitate this Artifice in works expoſed to violent attacks; for inſtance, in Maſts of Ships which are ever made of ſeveral pieces put together, that ſo being flexible they may be leſs apt to break.

Each Bone of the Skull is compos'd of two Tables, the Inner and the Outer. The Outer is a little harder than the Inner, and covered with the *Pericranium*. The Inner has divers Inequalities or Furrows, which the Veſſels of the *Dura Mater* firſt excavated, and after enlarged, while this Plate was very tender and ſoft, by their continual beating.

There is a Medullary Subſtance called by the *Greeks Diploe*, and by the *Latins Meditullium*, which lies between the two Tables, and interſperſed with Veins and Arteries, for its Nouriſhment like the Marrow in the other Bones of Human Bodies.

The two Tables of the Skull are ſolid, and ſerve as a Rampart to defend the Brain, to prevent this being too heavy, as it would be if it were one entire ſolid Bone; there is placed by the Providence of Nature a ſpungy light Subſtance, which by its unctuoſity humecting the Bone, makes

it

it more tough and leſs brittle, and diſpoſes it to yield a little to external Blows without cracking. Architects imitate this Structure, by laying Mortar between their Maſſy Stones, which by their vaſt weight would break, if ſome ſoft ſubſtance did not intervene to bear off the preſſure. The *Cranium* of an Elephant is of a vaſt biggneſs, and ſeems to be ponderous, and yet is really very light, and ſo the *Sternum* of Oſtriches and other Animals; for theſe Maſſes of Bones are compos'd of two thin plates, which contain a great many ſpungy *Lamellæ* within.

The Magnitude of the Head, is proportioned to the largeneſs of the Brain. Its beſt and moſt Natural Figure is Oval, ſomething riſing before and behind, and flat on the ſides. The eminence before and behind contains the Brain and Cerebel, and the flatneſs of the ſides conduces to the more advantageous placing the Organs of the two Senſes, of Sight and Hearing.

The Artiſt ought to be fully acquainted with the Figure, Aſperities, Depreſſions and Sutures of the Skull, to prevent being impoſed on; when he ſearches it to diſcover whether there be any Depreſſion after a Blow received.

The Ancients pretend, that when any Eminence is wanting either before or behind the Head, there are but two Sutures in the *Cranium*, which repreſent a T, that when the Head is entirely round, there are two Sutures croſſing each other, and forming an X; and laſtly, that when the Eminences before and behind jet very much out, there are three Sutures which form an H. *Volcherus Coiter* relates, that he had ſeen at the Houſe of that Learned Anatomiſt *Arantius*, one which wanted the anteriour Riſing, and both the Temporal and Coronal Sutures.

All the Bones of the Skull are united by Indentures, which are termed Sutures. Theſe Sutures are True, Falſe or Common; True Sutures are thoſe which joyn the principal Bones of the *Cranium*, and reſemble Stitches. Of this kind there are three, *viz.* The *Coronal* which joyns the *Coronal* Bone, or Bones of the Forehead to the *Parietal*. The *Sagittal* which proceeds along the top of the Head, from the fore to the hinder part, and joyns the *Parietal* Bones; and the *Lambdoidal* which joyns the *Occipital* to the *Parietal* Bones.

There are three Common Sutures which ſeparate the Bones of the upper Jaw, from the *Cranium*.

The

The Sutures which joyn the Bones of the Temples to the Parietal Bones, are called Squammoſe or Scaly, upon a ſuppoſition, they barely lie over the Parietal Bone, as the Scales of Fiſhes do one over another. But this is a miſtake, proceeding from a tranſient view; for upon a more accurate inſpection it appears, that all the Bones of the Skull are indented with each other, and the Temporal Bone as well as the reſt, is full of ſeveral little Angles, where it joyns to the Parietal. It may be remarked here, that the extreme edge of the Bone of the Temples, and that of the Parietal ſlope very much.

We have noted above, that there are three true Sutures, *viz.* the Coronal, Sagittal and Lambdoidal. The firſt receives its name from its reſembling a Circular Coronet, or the *Greek* Womens wearing a Coronet or Garland of Flowers on it. The Sagittal is ſo called from the *Latin* word *Sagitta*, or an Arrow, becauſe it ſhoots in a ſtreight Line, from the hinder to the fore part of the Head. The third is denominated from its Figure, which is not unlike the *Lambda* or Λ of the *Greeks*. The Antient Phyſicians made Fontanels on the concourſe of the Sagittal and Coronal, and the Sagittal and Lambdoical Suture to cure Defluxions on the Eyes.

The common Sutures may be reduced to two, That which joyns the *Os Ethmoides*; and the other which joyn the *Os Sphænoides*; for the Tranſverſal is no more than a Continuation of the Coronal.

The Principal uſe of the Sutures, is to hinder the Fracture of one Bone from extending to another, to ſuſpend the *Dura Mater* by giving paſſage to ſeveral Veſſels and Nervous Filaments proceeding from the *Pericranium*; and laſtly, to give way for inſenſible Tranſpiration. The laſt uſe aſſign'd to the Sutures, is evinced by the violent Head-achs, ordinary in ſuch Perſons where Tranſpiration is obſtructed by the extraordinary cloſeneſs of the Sutures. In ſome Perſons ſubject to perpetual pains in the Head, the Sutures have been found ſeparated.

Of the Bones of the Skull in particular.

The Bones which compoſe the *Cranium*, are the *Coronal* which poſſeſſes the whole Fore-part, the *Occipital* which poſſeſſes the whole hinder part, and the *Parietal* Bones which form the ſides. The *Os Sphænoides* or Wedgelike Bone, and the

the *Os Ethmoides* are common to the Skull and the Face. The minute Bones of the Ear, the *Malleus*, *Incus* and *Stapes*, are contained in the Cavity of the *Os Petroſum*, or craggy Bone of the Temples.

The Coronal Bone poſſeſſes all the forepart of the Head, and receives its Name from the Crown of Laurel, placed on the Victors Brows. It is called the *Os Frontis*, becauſe theſe Bones together form the Forehead, and is of a Semicircular Figure, ſmooth and polite without, and very unequal within, by the Impreſſion made by the Veſſels of the *Dura Mater*, whilſt the Bone is yet ſoft and tender. In ſome Skulls the Sagittal Suture is continued down to the Root of the Noſe, and the Frontal Bone divided into two, which diviſion ſome Authors pretend happens more frequently in Women than Men.

The Coronal Bone is a little thicker before than the Parietal, and by conſequence the Surgeon may turn his Inſtrument with leſs fear in this, than the other which are thinner. This Bone is joyned to the Parietal Bones by the Coronal Suture, and to the *Ethmoides*, *Sphænoides*, and the Bones of the lower Jaw by the common Suture. In the forepart, it compoſes a great part of the Orbit of the Eyes. The Plates of this Bone are ſeparated above the *Supercilia* or Eye-brows, and form two Cavities which extend to the middle of the Forehead, and ſometimes are very large, and at others very ſmall. There is great caution to be uſed in Trepanning in this place; for when the Brows are large and prominent, the Sinuoſities likewiſe are large, and extend far. Theſe Cavities open by a common *Foramen* into the Noſe.

Anatomiſts have entertain'd various conjectures of the uſe of theſe Cavities, ſome are of Opinion they ſerve to reflect the Voice, and form an Echo; alledging, that if theſe be deficient, the Voice is flat. Others believe they are a Magazin of Air which ſerves for the production of the Animal Spirits, and imagine this Air do's paſs thro' the greater Angle of the Eye to cool it, and that it do's likewiſe very much aſſiſt the Senſe of Smelling. But ſince theſe Cavities are lined with a Glandulous Membrane, interwoven with abundance of Blood-Veſſels, it is but reaſonable to think, theſe Glands diſcharge a great part of their Seroſities and *Mucus* inſenſibly into the Noſe. For we ever find the *Mucus* to be furniſhed by the Aperture of ſeveral *Sinus*; as for inſtance, the Bones of the upper Jaw and *Os Sphænoides*, which

which are lined by a Glandulous Membrane: The perforations of the Lachrymal Bone, drain a great quantity of Moiſture through the Noſe, by the Tears evacuated that way.

The Coronal Bone has ſeveral Holes; for inſtance, two external above the Brows which pierce the Orbit, and thro' theſe paſſes a Branch of the Nerves of the Third Pair, which is diſpenſed to the Skin, Muſcles of the Forehead and Eyelids. Beſides the external, there is one within above the *Apophyſis*, commonly called *Criſta Galli*, to which the Root of the right *Sinus* of the *Dura Mater* adheres. In its inner ſide are two *Sinus*, which contain the forepart of the Brain. It has one eminence with a long edge lengthways, to which the *Dura Mater* adheres.

Of the Frontal Bones in the Fœtus.

It is diverting to conſider the Oſſification of this Bone, which begins at the Circumference, and ſo proceeds to the Center, contrary to all others, which proceed from the Center to the Circumference. In a *Fœtus* of two Months old, the Coronal Bone is a Membrane, which by degrees becomes Cartilaginous. In the third Month ſeveral Points appear, which like ſo many Centers, begin the Oſſification and above the Orbits, on each ſide a bony Creſcent appears. In the fourth Month the bone is Oſſified, except its middle, which ſtill remains Membranous. The Orbits and the Hole thro' which the Motory Nerves of the Eye do paſs, begin then to be formed. The Coronal is divided into two bones by a Suture, which paſſes through its midſt, which is very cloſe at the end next the Noſe, and very large at the other near the Fontanel: the bony points of the Orbits which appear as through a Cloud, are very diſcernable. In the fifth and ſixth Month the Oſſification advances, the Fontanel is leſſen'd, and the middle of the Coronal is bony; and in the ſeventh Month the Oſſification is perfected. The longitudinal *Sinus* is ſeen through the Fontanel, in the eighth Mouth. *Kerkringius* in his Hiſtory of the *Fœtus* pretends, that if the Fontanel do's not cloſe within ſome time after the Birth, it will remain open all the Patients Life; and aſſures us, he has often ſeen it open in Ancient People. In the ninth Month the bones of the Head, particularly the Coronal and the Occipital approach, and paſs one over the other, which facilitates the paſſage of the Infant into the World.

Of

Of the Parietal Bones.

Theſe are ſo called from their being placed on each ſide the Head, like two Walls to defend it. Theſe Bones are externally very ſmooth, but their inner Surface has ſeveral Depreſſions or Furrows formed by the Pulſation of the Arteries, while the part is ſoft. Theſe Impreſſions do not unaptly reſemble the neither ſide of a Fig-leaf. Theſe are the moſt thin of all the Bones of the *Cranium*, which muſt be regarded, in applying the Trepan to prevent hurting the *Dura Mater* with the Teeth of the Inſtrument. Theſe Bones are contiguous to the Frontal, Temporal, Sphænoidal, and Occipital Bones; The Fontanel is the place where the Sagittal meets the Coronal Suture. *Hippocrates* calls this part *Bregma*, becauſe it is the moſt tender of all parts of the Skull. The Antients gave it the name of the Fontanel, imagining that the Brain did moſt abound with Humidities in that part. *Ariſtotle* thinks the Fontanel Oſſifies, about the time Children begin to ſpeak; but there is no certain Rule in this matter. In the inſide of each Parietal Bone, there are two great *Sinus's* in the middle. On each ſide of the Sagittal Suture, there is a ſmall hole for the Tranſit of the Veins, which convey the Refluent Blood from the Teguments of the Head, to the right *Sinus* of the Brain.

Of the Parietal Bones of the Fœtus.

In the three firſt Months after Conception, there is nothing conſpicuous, beſides a few points which appear obſcurely, and the Oſſification of the Membrane begins there. At the end of the fourth Month, the Oſſification of the Parietal Bones is compleated. At that time there are ſeveral Membranous interſtices in the Sagittal Suture, and the Temporal and Sphænoidal Bone; for the Oſſification of the Parietal Bones begins at the Center, and terminates at the Circumference, contrary to the proceſs of Nature, in the Coronal Bone. In the fifth and ſixth Month theſe bones grow conſiderably, and approach very near each other, ſo that in the ſeventh Month, they unite and form the Sutures. The Parietal bones are ſeparated from the *Sphænoides*, and Temporal bone by an intervening Membrane. In the eighth Month, the bones begin to touch each other, and in the ninth they are joyned to the *Sphænoides* and Temple-bone.

bone. The Fontanel, as I noted above, is formed by the concourſe of the two Parietals, with the Coronal Bone, and is not cloſed till eight or ten Months after the Birth of the Child, and if we may believe *Kerkringius*, ſometimes remains open as long as the Perſon lives. Midwives uſually judge a Child to be dead in the Mothers Womb, when they find the Membrane of the Fontanel cloſed and ſunk, becauſe the Motion of the *Dura Mater* in living Children, keeps up this part.

Of the Bones of the Temples.

The Bones on the ſide of the Head are called the Temporal Bones, from the Latin word *Tempus*; becauſe they diſcover the Age of any Perſon, the Hair ſooner becoming gray in that, than in any other part of the Head. Theſe Bones are placed laterally near the lower part of the Head. The upper part of this bone is then Semicircular, and is called the ſcaly bone, or *Os Squammoſum*, and the lower part very hard and rough, and therefore called the craggy part, or *Os petroſum*. The greateſt part of theſe bones is joyned to the Parietal, and upper part of the *Sphænoides*, and their lower or craggy part, is joyned to the lower part of the Occipital and *Sphænoides*.

The Squamous part of the Temporal bone has its outer ſurface very polite and ſmooth, but has ſeveral *Sinus's* on its inner ſide, which receive the Brain. This has likewiſe ſeveral parts, *v. g.* its external *Apophyſis* or Temporal Proceſs, which the *Greeks* call *Zygomatick* from its being joyned to the *Zygoma*, or proceſs from the Cheek bone. Its *Maſtoidal* Proceſs which receives its Name from its reſembling the Nipple of a Breaſt, and is placed behind the Auditory paſſage. The Proceſs call'd *Styloides*, becauſe it reſembles a Probe by its long and pointed Figure, to the Superior part of which, the upper part of the *Os Hyoides* adheres.

Below the Temporal Proceſs on each ſide is a ſmall *Sinus*, into which the leſſer Heads of the lower Jaw are articulated, and laſtly on the inſide, a hard rough Proceſs from its ſolidity and cragged Figure, called the craggy bone, or *Os petroſum*, which contains the whole Organs of Hearing. The bones of the Temples have ſeveral Holes both within and without, through the firſt of the internal, paſſes a branch of the Carotid Artery. Through the ſecond paſſes the Auditory Nerve, which

which after divides it ſelf into the hard and the ſoft Branch. Of the External, the firſt is the *Meatus Auditorius*, or Auditory paſſage. The ſecond is oblique, and tranſmits a Vein to the Jugulars. The third lies between the *Maſtoides* and *Styloides* Proceſſes, and the fourth penetrates the Auditory paſſage, and is called the Communicant Duct, through this paſſage the ſmoak of Tobacco is ſometimes emitted by the Ear.

Of the Bones of the Temples in a Fœtus.

In the ſecond Month the bones of the Temples are Membranous. In the third Month the *Zygomatick* Proceſs, and the Circle to which the Membrane of the *Tympanum* or Drum is fixed, are bony. But during the whole ſtay of the *Fœtus* in the Womb, the Auditory Channel is Cartilaginous, and Nature to preſerve the Drum, has drawn a thick Membrane over it.

The *Styloidal* Proceſſes are of a bright red Colour like a Ruby, and lie cloſe to the bony Circle, from whence they derive their Origin, not extending themſelves, and ſtanding out as they afterwards do. Theſe Proceſſes do not Oſſifie, till a long time after the Birth, extending themſelves gradually, and ſtanding more and more out and encreaſing. In the fourth Month, the Scaly part of the *Os Petroſum* becomes bony. The Cavities which compoſe the Organ of Hearing, are included in the craggy Proceſs, and are formed of a bright red Cartilage. The craggy Proceſs is as yet wholly Cartilaginous, and there is nothing bony in it, beſides a little rough unequal Line, which extends the whole length of the bony Circle, and ſo paſſes beyond it. At this time the Temporal bone is compos'd of three ſmall bones, the Squamous or Scaly bone, the Ring or bony Circle, and the ſtraight Line of the craggy Proceſs. In the fifth Month, the Scaly part of the Temporal bone is joyned to the *Sphænoides*, and Parietal bone. The Mammillary Proceſs is formed of three ſmall bones, the firſt is called *Pyriformis*, from its reſembling a Pear, which is joyned by its ſlender end, to the Squammous bone. The ſecond is called *Scutiformis*, from its reſembling a Buckler, and is near as thick as the other. The third bone is about the thickneſs of a pin Head, and divided from the other by the ſame Cartilage.

Near the hole through which the Auditory Nerve paſſes, there is another hole, which in Adults is of a long ſtrait

Figure like a ſmall Cleft. The Temporal bone is of a more irregular Figure in the *Fœtus*, than in Adults.

In a *Fœtus* of ſix Months old, the Maſſy part of the Hammer is bony. The longeſt branch of the Hammer is entirely Cartilaginous, and adheres to the Membrane of the Drum. The *Incus* or Anvil has nothing Cartilaginous, except the top of its *Apophyſis*. The *Baſis*, and the two Branches of the Stirrup are bony, the Stirrup it ſelf appears Simicircular above. The fourth or Orbicular bone is deficient in the *Fœtus*.

In the fifth Month, the Temporal bone is compos'd of ſix ſmall bones, diſtinct from each other, *viz.* the ſcaly part of the bony Circle, (which has a Channel or Rift, in which the Membrane of the *Tympanum* is enclos'd) the craggy Proceſs which contains the Organs of Hearing, and the three ſmall bones of the Mammillary Proceſs.

In the ſixth Month, the *Scutiformis* and *Pyriformis* unite into one. The third bone is a little thicker, the Stirrup is not formed; the Hammer and Anvil are a little thicker, but their hardneſs continues the ſame. In the ſeventh Month, the ſmalleſt bone of the Mammillary Proceſs joyns to the *Scutiformis* and *Pyriformis*. The ſmall bones of the Ear do not differ from thoſe in Adults, except that the longer Branch of the Hammer at firſt is only Cartilaginous.

Of the Bones of the Ear in Adults.

The *Os petroſum* or craggy Proceſs, is divided into three Cavities, *viz.* the *Tympanum* or Drum, the Labyrinth and the *Cochlea* or Screw.

The *Tympanum* contains in it four ſmall bones, *viz.* the *Stapes*, the *Incus* and *Malleus*, or Stirrup, Anvil and Hammer.

The Stirrup is a ſmall bone, which derives its Name from its Figure. It is compos'd of two Branches, fixed on a flat Oval Baſis. In the joyning together of theſe two Branches above, a ſmall *Sinus* is formed, in which the fourth bone is lodged.

The ſecond bone takes its Name from a Smiths Anvil, which it is not very much unlike. It conſiſts of three parts; the firſt is the thickeſt of all, and forms the Body of the bone, the two other are ſmall Branches, and are only *Apophyſes* of the former. The more bulky part has two Cavities, and one Protuberance to articulate with the Protuberance, and Cavity of the Head of the Hammer. This Articulation reſembles a Hinge.

The

The Hammer is a little bone, which is ſomething like a Workmans Hammer, the greater and thicker extremity repreſenting the Head, and the thinner and ſlenderer the Handle. The hinder part of the Head of the Hammer has two Protuberances, and one Cavity adapted to receive the Anvil. The Handle is long and ſlender, and is made thicker by two *Apophyſes*.

The fourth Bone has ſcarce any diſcernible thickneſs, and is not very much unlike the Scales of ſome Fiſhes. It is convex on the ſide where it joyns the Head of the Stirrup, and a little hollow where it is Articulated with the tip of the Anvil. None of theſe bones are covered with the *Periоſteum*, and all are kept together in the place of their Articulation with Ligaments. They all have little Holes for the Reception of thoſe Veſſels which import Nouriſhment to them. The Hammer and Anvil are more ſolid, than the Stirrup, which is an exceeding thin and porous bone.

Of the Occipital Bone.

There is no bone of the Head requires more Care and Caution in trying it with the Probe to diſcover its Fractures, than this, which Difficulty proceeds from its irregular and and capricious Figure. The Occipital Bone compoſes all the lower and hinder part of the Skull. Its Figure is ſomething Lozenge, and it is near an inch in Thickneſs. Its exteriour part is unequal. This Bone has two *Condyli* or flattiſh round knobs, which are received in the two *Sinus* of the firſt *Vertebra* of the Neck, by means of which Articulation, the Flexion and Extenſion of the Neck is performed. There are in its inner ſide two great Cavities, which receive the Cerebel; Beſides theſe there are two leſſer lateral ones with two remarkable Furrows winding obliquely above the greater Cavities. Through theſe Furrows the two lateral *Sinus* of the *Dura Mater* paſs, which diſcharge their Blood into the Jugulars; in the laſt place there is a Protuberance, to which the *Dura Mater* adheres.

The Occipital is joyned to the Parietal, Temporal, and Sphænoidal bones. This bone has five Holes, *viz.* The Great one, through which the Spinal Marrow paſſes; two Lateral ones, and two more between its *Condyli* and *Proceſſus Styloides*. The lower part of this bone has ſeveral Protuberances, to which Muſcles are inſerted. There is ſometimes a Triangular bone enchaſed into the Occipital, by three

Sutures. Sometimes this Triangular bone is cleft through the midſt, and each moiety joyn'd by a Suture.

The Lambdoidal Suture is frequently interrupted by ſeveral very ſmall and longiſh bones, which are inſerted between the Occipital and Parietal ones, and ſerve to rivet them together. When the Surgeon ſearches this bone to diſcover if it be broke or not, he muſt conſider well the ſeveral pieces of which it conſiſts, the ſmall Sutures, and the Triangular bone juſt now mentioned; for without this neceſſary caution, he will be apt to be impos'd on by its great inequality, and may be induced to believe it broke when it is entire.

Of the Occipital Bone in the Fœtus.

In the third Month after Conception, the Occipital bone conſiſts of four Triangular ones, *viz.* one great, and three ſmall ones. The great Triangular bone is ſometimes all of one piece, and at other times it is made up of two, three or four bones joyned together. After the leſſer bones which compoſe the great Triangular one, are united into one large bone, there is uſually formed another leſs one of a Triangular figure likewiſe, one of whoſe Angles touches the greater Triangular, and the two other extend to the Condyloidal Proceſſes.

In the ninth Month, this bone is united to the Condyloidal Proceſſes, and the great Triangular bone. The ſmall bone beneath theſe Condyloidal Proceſſes is triangular likewiſe, and continues diſtinct; but ſometimes after the Birth it is united to the great Triangular, and the two Condyloidal proceſſes of the Occipital bone. In a *Fœtus* of nine Months old, the great Triangular is ſometimes divided into four unequal Portions. From the above recited particulars it is evident, there is no bone in the whole Body, in whoſe Formation Nature ſeems to be leſs regular than this.

Of the Sphænoidal Bone.

This bone compoſes the whole Baſis of the Skull, and is contiguous to almoſt all the bones of the Head, being crouded like a Wedge between them, and this is the reaſon of its Name. It is thicker on that ſide where it is united to the Occipital bone, and thinner and ſmoother in its upper part; but its Figure is ſo irregular, that it would be very difficult

difficult to give a clear *Idea* of it by a Verbal Deſcription, and may be better learnt by once ſeeing it, than by all the words in the World. On its upper ſide it is joyn'd to the Temporal Coronal and Cheek bone, and on its lower to the two greateſt bones of the upper Jaw, the Occipital and the *Vomer*. It has five Proceſſes on its external Part, two of which reſemble the Wings of a Bat, and by the *Greeks* are called the *Pterygoidal* or Wing-like Proceſſes, in which are two *Sinus* termed *Foſſæ*. Beſides theſe, there are two more which are flat and ſmooth, which form a Part of the Orbits, and the nether part of the Temples, which is reckon'd as one of theſe *Foſſæ*, and a ſmall Proceſs which is enchaſed in a Channel of the *Vomer*. The Sphænoidal bone has on its innerſide two Proceſſes, which the *Greeks* term *Clinoidal*, becauſe they bear ſome reſemblance to the Poſts of a Bed. Between theſe Proceſſes, there is a Cavity which contains the Pituitary Gland, and this is called the *Sella*, becauſe it is not unlike a Saddle. Between the Tables of the *Os Sphænoides*, there is a double Cavity ſeparated by a partition in the middle, which forms two *Sinus* opening by different Holes into the Cavity of the Noſtrils. *Sylvius* imagines, that the *Pituita* diſtills inſenſibly from the Pituitary Gland into theſe *Sinus*, and by this way is conveyed into the Mouth. But there is little probability of the truth of this conjecture, becauſe there are no viſible perforations in the *Sella*, through which this Humour can be diſcharged. The Holes of this bone ſhall be deſcribed, when we come to enumerate thoſe in the *Baſis* of the Skull.

Of the Sphænoidal Bone in the Fœtus.

In the ſecond Month this bone is Cartilaginous, in the third its two Wings are bony, in the fourth it is compos'd of eight ſmall bones, *viz.* the Pterygoidal Proceſſes, the two ſmall bones which ſupport the fifth pair of the upper Jaw, and the two ſmall bones which form the *Sella*, which are at that time as big as a Pins Head; and laſtly, thoſe which tranſmit the Optick Nerve. The two ſmall bones which ſupport the fifth Pair of the upper Jaw, are divided by the bony Partition of the Noſtrils. And thoſe which compoſe the *Sella*, are ſeparated by a Cartilage; but in the fifth Month they make but one, which reſembles a Creſcent. In the fifth Month, the *Os Sphænoides* makes but one piece; yet in the midſt of the *Sella*, there is a Conſiderable Cartilage.

From the ſixth to the ninth Month, the *Os Sphænoides* encreaſes, and by degrees hardens; and though it appears divided in ſeveral places by tendinous interſtices, yet it ought to be accounted but one bone, becauſe theſe in proceſs of time, wholly diſappear in the ſame manner as in other bones.

Of the Os Ethmoides *or* Cribroſum.

The laſt bone of the Skull is the *Ethmoides* or Sieve-like bone, which receives its Name from a multitude of ſmall Holes which open into the Noſe. In the midſt of this bone, there is a ſmall Proceſs called *Criſta Galli*, which very much reſembles a Cocks Comb, on the ſide of this are a multitude of ſmall Holes, through which ſeveral Branches of the Olfactory Nerve paſs, which ſerve to line the Cavities of the Noſe, and are diſpenſed to the Organ of Smelling. The Lateral parts of this bone which form part of the Orbit, are called *Oſſa Plana*, becauſe they are flat and polite. Theſe Plates are each pierced with a ſmall Hole called the Internal Orbital, through which paſſes a branch of the fifth pair. That part of the *Os Ethmoides* which is continued into the Noſe, is a ſmall Plate thicker on that ſide, which regards the bones of the Noſe, and thinner where it terminates in the Channel of the *Vomer*. On the ſides of the Cavity of the Noſe are ſeveral ſmall bony Plates, called *Oſſa Spongioſa*, or the ſpongy bones, and are inveſted with the ſame Membrane that lines the Cavity of the Noſe. Where theſe *Laminæ* are very numerous as in Vulturs, Greyhounds, the Animals generally have an exquiſite ſmell.

Of the Ethmoidal Bone in the Fœtus.

The Partition or Sepiment which divides the great Cavity of the Noſe, the *Criſta Galli*, and the *Ethmoidal* bone is not bony in the *Fœtus*. The *Ethmoides* Oſſify's about the fifth Month, beginning with thoſe ſmall ſpongy bones which are fixed to the ſide of the Sepiment of the Noſtrils. In the ſixth Month the ſcaly part of the *Ethmoides*, which makes up a Portion of the Orbit, becomes bony. The other parts of this bone remain Cartilaginous, for a great while after the Birth.

But before I leave the bones of the Skull, I cannot forbear preſenting the Reader with an exact Deſcription of the Holes in its *Baſis*, which accurate and curious Hiſtory,

Hiſtory, I have extracted out of a Book entitled the *Compleat Surgeon.*

An Account of the Holes in the Baſis *of the Skull, and the Veſſels which paſs through them.*

There are nine pair of Nerves which ſpring from the Spinal Marrow, and paſs out of the Skull through as many ſeveral Holes. The firſt pair ſerves the ſenſe of Smelling, and is divided below the *Os Cribroſum* into ſeveral Filaments, which paſſing through ſeveral Holes, are diſpenſed to the internal Tunick of the Noſe. The ſecond pair are the Optick or Viſive Nerves, which paſs into the Orbit through ſeveral Holes, excavated in the Sphænoidal bone, immediately above the Anteriour Clinoidal Proceſſes. In that Portion of the Sphænoidal bone which forms the bottom of the Orbit, there is a Fiſſure about half an inch in length, which in the lower part beneath the Hole through which the Optick Nerve paſſes, is almoſt round, and larger above where it terminates in a very long acute Angle. There are ſeveral Nerves which enter the Orbit through this Cleft; as 1. The third pair called the Motory Nerves of the Eye. 2. The fourth pair called by *Willis* the Pathetick. 3. The ſixth pair. Beſides theſe three pair which paſs intirely through this Cleft, there paſſes likewiſe the Superiour Branch of the anteriour Trunk of the fifth pair, which Dr. *Willis* calls the Ophthalmick Branch. Beyond the inferiour part of this cleft, towards the hinder part of the Head, there appears on each ſide in the Sphænoidal bone, a Hole which do's not pierce the *Baſis* of the Skull, but makes a ſort of a Channel about an inch long. This Channel opens behind the Orbit at the top of the ſpace between the Pterigoidal Proceſs, and the third bone of the upper Jaw. The inferiour Branch of the Fore-Trunk of the fifth pair, paſſes through this Channel. About the ſixth part of an inch beyond the Channels, there are two more Holes in the Sphænoidal bone of ſomething an Oval Figure. Theſe lie on the back ſide of the *Sella*, through which the poſteriour Trunk of the fifth pair paſſes. The Hole through which the Auditory Nerve or ſeventh pair paſſes, is in the midſt of the poſteriour part of the *Os Petroſum*, which looks towards the Cerebel. This Hole which is very large is the Mouth of a Duct or Channel, which running through the *Os Petroſum*, and ſinking obliquely downwards to the depth of a ſixth

part of an Inch, forms the bottom of a Sack, terminating partly in the *Baſis* of the *Cochlea*, and partly in the Mouth or Entry of the *Veſtibulum*. At the bottom of this Channel are ſeveral Holes; The moſt conſiderable of theſe is, that in the upper part through which a portion of the Auditory Nerve paſſes, and this is the entry of another Channel made in the *Os Petroſum*, which opens between the *Maſtoidal* and *Styloidal* Proceſſes. The other Holes tranſmit the branches of the ſoft pair of the Audirory Nerves. Below this Channel, there is a conſiderable Hole formed by the meeting of two unequal Ridges, the largeſt of which proceeds from the Occipital bone, and the other from the inferiour part of the craggy Proceſs. From the middle of the Superiour part of this Hole, there is a ſmall bony point jetts out, to which an Appendix of the *Dura Mater* is affixed, which divides the Hole into two parts. Through the anteriour of theſe, the Nerves of the eighth pair and the Spinal Nerve paſſes out; as for the poſteriour Hole, its uſe ſhall hereafter be aſſigned. Near the great Hole of the Occipital bone through which the Spinal Marrow paſſes, there is an Oval Hole through which a Nerve of the ninth pair paſſes. This Hole is entirely made in the Occipital bone, and proceeding a little forward, paſſes obliquely from behind forwards. In the forepart of the Skull that Hole is ſometimes double, but its two Mouths reunite on the external part of the Skull, and the two Branches which compoſe the Origin of that Nerve paſſing through them likewiſe, unite before they leave the bone. Thus I have enumerated all the paſſages of the nine pair of Nerves, which proceed from the *Medulla Oblongata*; there remains only the Intercoſtal Nerve, and the tenth pair: The firſt of which paſſes out of the Skull by the ſame Hole, through which the internal Carotid paſſes in, and the latter ariſes from the Spinal Marrow between the Occipital bone, and the firſt *Vertebra* of the Neck, and paſſes out through the ſame Hole of the *Dura Mater*, by which the Vertebral Artery enters.

The Veſſels of the *Dura Mater* are the Carotids and Vertebrals with their Ramifications. In the Sphænoidal bone behind the Hole through which the poſteriour Trunk of the fifth pair paſſes, there is another little roundiſh Hole, which tranſmits a Branch of the external Carotid Artery, which entring the Skull, adheres to the *Dura Mater*, and ſends out divers Ramifications, which ſupply with blood all that portion

portion of the Membrane, which covers the ſides and the top of the Brain. At the bottom, and at the top of the external Lateral part of the Orbit, above the acute Angle of the cleft of the Sphænoidal bone, there is a Hole through which a ſmall Artery paſſes, which ſprings from that Branch of the internal Carotid, which imports Blood to the Eye. This Artery is diſpenſed to all that part of the *Dura Mater*, which covers the Anteriour part of the Brain. The Vertebral Artery after it enters the Skull, diſpenſes a conſiderable Branch on each ſide, which is diſpenſed to all the Portion of the *Dura Mater* which covers the Cerebel. As for the Veins which accompany theſe Arteries, they paſs almoſt all out of the Skull by the ſame Holes, through which the Arteries enter in. There are four great Arteries which ſupply the Brain with Blood and Spirits, *viz.* the two internal Carotids, and the two Vertebrals. The Internal Carotids enter into the Skull by a particular Channel in the Temporal Bone. The Mouth of this Channel is of an Oval Figure, and is ſeated on the external part of the *Baſis* of the *Cranium*, before the *Sinus* of the Internal Jugular. This Channel proceeds obliquely from behind forwards, and after running about a quarter of an inch in length, ends near the poſteriour part of the *Sella* in the Sphænoidal Bone. The Artery makes a *Flexus* here, which forms a Roman S. In the place where the Carotid Arteries ſtrike through the *Dura Mater*, they ſend out a great Branch which paſſes into the Orbit, by the Inferiour part of that Hole which tranſmits the Optick Nerve. The Vertebral Arteries iſſuing out of the Holes of the Tranſverſe Proceſſes of the firſt *Vertebra* of the Neck, in their Progreſs are reflected under the Superiour Oblique Proceſſes of 7 other *Vertebræ*; after this they ſtrike through the *Dura Mater*, and running along on the Spinal Marrow, enter the Skull through the great Occipital Hole, and then inclining to each other, unite and form but one Trunk. The Veins which export the Refluent Blood from the ſubſtance of the Brain, empty their Contents into the *Sinus* of the *Dura Mater*, all which diſcharge themſelves into the Lateral ones, which iſſue out of the Skull immediately below the Nerves of the eighth pair, by the hinder part of the Hole formed by the juncture of the Occipital bone, and craggy Proceſs. The Lateral *Sinus* open into the internal Jugulars, whoſe Mouths are contained in a conſiderable *Sinus*, wrought on each ſide of the external part of the *Baſis* of the Skull, and commonly known by the Name

Name of the *Sinus* of the internal Jugular Veins. In the upper and posteriour part of the Hole through which the Lateral *Sinus* go out, there is an Aperture which is the extremity of a Channel. This Channel has its Mouth or Entry behind those Condyls, which ſtand on each ſide the great Occipital Hole, and after a Courſe of about a ſixth part of an inch through the Subſtance of the Bone, opens immediately into the Vertebral *Sinus*, from whence indeed it ſeems to take its Origin. From hence it is evident, that the blood contained in the Lateral *Sinus* is diſcharged two ſeveral ways, *viz*, The greateſt Portion into the Jugulars, and the other into the Vertebral *Sinus*, which ſometimes appear only on one ſide, at other times are intercepted on both ſides, and then all the Blood contained in the Lateral *Sinus*, is diſcharged into the internal Jugulars. Behind the Maſtoidal Proceſs, there is on each ſide a conſiderable Hole, through which paſſes a large Vein, which conveys back a great part of the Refluent blood from the Teguments and Muſcles, on the hinder ſide of the Head. This Vein opens into the Lateral *Sinus*, in the place where there Flexuoſity begins. In ſome Subjects, this Hole is only on one ſide, and ſometimes there is none at all to be found; when this happens, the Blood contained in theſe Veſſels, is emptied into the External Jugulars, with which the Branches of this Veſſel communicate in three places on each Parietal bone, on the ſide of the Sagittal Suture, and at a little diſtance from the Lambdoidals. There is a Hole through which paſſes a Vein which conveys back the Refluent Blood from the Tegument of the Head, and this empties it ſelf into the upper Longitudinal *Sinus*. Theſe Paſſages are ſometimes ſtopt upon one ſide, and ſometimes on both, in which caſe the Blood contained in the Branches of this Vein, is diſcharged into the external Jugular. In the midſt of the *Sella*, there are two or three ſmall Holes, through which ſome Modern Authours have imagined the *Lympha* contained in the Pituitary Gland is diſcharged into the *Sinus* of the *Sella*; but theſe Holes are filled with Veſſels which carry the Refluent Blood from the Adjacent Bones and Membranes; nay, theſe Holes themſelves are ſeldom to be found in Adult Perſons. Between the Ridge of the Coronal Bone, and that of the *Criſta Galli*, there is a Hole which is the Mouth or Entry of a Channel, which takes its courſe downwards for the ſpace of about the ſixth part of an inch, through the thickneſs of the inner Table of the Coronal Bone: The Roor

of

of the upper Longitudinal *Sinus* is inſerted here, and it likewiſe tranſmits ſeveral Blood-Veſſels which ſerve for the Nouriſhment of the inner Table.

There are ſeveral other Holes in other parts of the *Baſis* of the Skull, the Principal of which are on the craggy Proceſs. Theſe tranſmit diverſe Veſſels for the Nouriſhment of the Temporal bone, which contains the bones of the *Tympanum*. The other Holes tranſmit Veſſels which ſupply with blood, the various parts of the *Baſis* of the Skull.

The OPERATION.

In applying the Trepan, the Artiſt muſt ever obſerve not to fix his Inſtrument on the Sutures, eſpecially the Fontanel; becauſe there are, as I before noted, an infinity of ſmall Veſſels which paſs through them, and connect the *Dura Mater* to the Skull in thoſe places. If the Operation were made there, there would be great Danger of tearing thoſe Fibres and Veſſels with its Teeth, or perhaps opening the Longitudinal *Sinus* in Trepanning on the Sagittal Suture. If the Blow happen to be on the Sutures, and you judge there is Blood extravaſated on each ſide of the Head, the ſureſt way is to apply the Inſtrument on both ſides, becauſe the *Dura Mater* adheres to the Sutures ſo ſtrictly, that there can be no Communication from one to another.

The Trepan muſt never be placed directly in the middle of the Coronal, nor the Occipital bone, eſpecially towards their lower parts; becauſe the *Dura Mater* adheres very firmly to the productions in theſe places, and there is great danger of tearing it in turning round of the Inſtrument.

You muſt never Trepan on the Eye-brows, becauſe of the great Cavities beneath, which are lined with a very thick Membrane, and the bone being double in this place, inſtead of coming to the Brain after the Perforation is made, you only diſcover a Cavity, and there remains ſtill another bone to go through, which makes the Operation difficult and troubleſome. Beſides as we obſerved before, the Wound would be a long time in Healing, becauſe the Glandulous Membrane which lines the Cavity, ſupplies matter for a plentiful Suppuration.

You muſt never Trepan on the Temporal bone, unleſs in caſe of great neceſſity, eſpecially in that part where it is conti-

contiguous to the Parietal, becauſe here its thinneſt part joyns to the lower part of the Parietal, and one part of the Temporal bone muſt neceſſarily eſcape, ſince it only lies on the Parietal, and this creates great difficulty in the Operation.

You muſt never Trepan on the Lateral *Sinus*, which lie on the ſide of the Occipital, for fear of opening thoſe *Sinus* with the Teeth of the Inſtrument.

When any Fragment of a bone is depreſt, or there is a Comminution; you muſt not fix the Trepan over them, but on one ſide. For if you ſhould place it over, you would run a risk of thruſting thoſe Fragments into the Brain, and Mortally wounding the Patient; and for this Reaſon, the Inſtrument is better applyed laterally, than on the Depreſſion it ſelf.

The Trepan may be applyed on any other part of the Skull, except thoſe mentioned; but if the Bone be much ſhattered, and the Fragments or Splinters be ſo large, that upon the taking them out there is ſufficient room for the Application of Medicines; you may ſuperſede the uſe of this Inſtrument, there being no occaſion for any farther Perforation.

The Inciſion of the Teguments muſt be made after ſome of the following ways, *viz.* On the Temporal Muſcle it muſt have the Figure of the number 7, or Letter V, or which is better be made lengthways, following the courſe of the Fibres, and be large enough to place the Inſtrument. In all other places of the Head, the Inciſion is ordinarily made in form of a Croſs; ✠ but I think the long T is better, provided there be room enough to apply the Inſtrument. In Wounds of the Forehead the Inciſion is beſt made tranſverſly, following the courſe of the Wrinkles, for then the *Cicatrix* will create leſs Deformity.

After a blow on the Head it is neceſſary to ſearch, eſpecially when the Skull is bare; and if the Orifice be not large enough, it muſt be Dilated, and the Bone laid bare, in order to diſcover the Nature of the Fracture. When the Inciſion is made, the Wound muſt be filled with dry Lint to abſorb the Blood, which otherwiſe would hinder a due inſpection of it. If Blood iſſue from any Artery, the Artiſt muſt make a Ligature on it, and leave the Wound in this condition till the next day.

If the Bone be very much ſhattered, and ſome Fragments of it depreſſed, it muſt be raiſed, and you muſt leave the Dreſſing

Dreſſing till the Hæmorrhage be ſtopt, that ſo you may conſider of the beſt place to apply the Trepan.

After the Inciſion is made (whether it be of the form of a Croſs, ✝, V or T) the Teguments removed, and the *Pericranium* ſcraped off (by a *Spatula*, or with the Nails) the Flux of Blood ſtopt, and four and twenty Hours are lapſed, ſince all theſe Preparatives are made (which laſt Circumſtance is not always neceſſary, eſpecially when ſome preſſing Symptoms require greater Haſt) you may proceed to the Operation it ſelf in the following manner.

Place the Patients Head in a convenient Poſture; this is ordinarily done by laying it on a Pillow, and moſt Surgeon ſtop the Ears with Cotton, to prevent his hearing the Noiſe of the Standers by, or the grating of the Inſtrument. When the Head is conveniently placed, begin the work by making a ſmall hole with the Perforative or Piercer, in this ſmall Hole put the Pin in, to keep the Trepan Stable, which otherwiſe would be apt to rowl about, and make ſeveral Inciſions with its Teeth. You muſt be careful to chuſe a Head ſuited to the largeneſs of the Hole you intend to make; Hold the Handle of the Trepan with the left Hand, and ſupport the Forehead with the ſame Hand that holds the Trepan, that ſo you may preſs its Head againſt the Skull, and make the Perforation more commodiouſly; At firſt turn your Inſtrument very quick. When the Trepan has taken ſufficient hold take it off, and lay aſide the Pin; for if this continue in much longer, there will be great danger of piercing the *Dura Mater*, ſome Skulls being exceeding thin. Cleanſe the Teeth of the Inſtrument with a little bruſh, every time you take it out, and after place the Crown in again. Every time you take out the Inſtrument, which is to be done frequently, you ought to try how deep you have gone, for fear leaſt in turning it too haſtily round, you endanger a Laceration of the *Dura Mater* by its Teeth.

You muſt likewiſe with a quill cut after the manner of a Tooth-picker, try the depth of the Perforation in each part of it, that in caſe it be cut more on one than the other ſide, you may lay the ſtreſs of the Inſtrument on the oppoſite.

When you find Blood in the Teeth of the Trepan, you may be aſſured the Inſtrument has paſt through the firſt Table of the Skull, and is arrived at the *Diploe*. When you perceive this, you muſt turn ſlowly and very cautiouſly, for fear of taking off the firſt Table, and leaving the ſecond, which

which Accident makes the Operation more tedious and troubleſom. When this happens, take out that piece which is in the Trepan, and continue to cut through the ſecond Table without being ſurprized; for the firſt Table is very apt to be broken off after blows with a blunt Inſtrument, becauſe the Shock moſt commonly ſeparates the *Diploe* from the Bone. Try from time to time with the Myrtle Leaf, whether the piece you are about to take out ſhake, and be near cut through. This is done to prevent hurting the *Dura Mater*, which you muſt inevitably do, if you continue to ſaw the Bone, without ſearching if it be looſe or not. Some Artiſts uſe the *Terebellum* for this purpoſe, but in this Caſe it is neceſſary to have made a way into the Bone while it is ſtable, before the application of the Trepan. In taking out the piece which ſhakes, you muſt not attempt to pull it away forcibly, but remove it gently, for fear of Lacerating the *Dura Mater*, which frequently cleaves to it in young Bodies. If the *Dura Mater* adhere to the Skull, it may be ſeparated with the Myrtle Leaf. Some Practitioners wait for a Suppuration to ſeparate them, but ſince this happens for the moſt part only in young Subjects who have the *Dura Mater* ſoft and lax, the Bone may conveniently enough be freed from it by the *Spatula* or Myrtle Leaf.

When the Piece is removed, there always remain in the bottom of the Aperture ſeveral little Aſperities, which are to be pared away with the *Scalper Lenticularis*, or Lenticular Inſtrument Knife (ſo call'd from a ſmall knob not unlike a Lentil) with which you preſs a little the *Dura Mater* to facilitate the iſſue of the extravaſated Blood and *Pus*.

To evacuate the Blood and *Pus*, place the Patients Head inclining in ſuch a commodious poſture, that the Matter may make its way to the Aperture, and then bid the Patient ſhut his Mouth and Noſe, and hold his Breath. Theſe Efforts force the *Dura Mater* to approach cloſe to the Aperture, and drive out the Matter extravaſated on it. This Riſing of the *Dura Mater* is effected by the contraction of the Diaphragm in the Retention of the Breath, which muſt neceſſarily conſtringe the deſcending Artery paſſing between its Tendons, and by conſequence drive a great proportion of Blood into the Aſcending Trunk, which paſſes by the Carotid and Vertebral Arteries into the Brain.

The Extravaſated Matter which preſents, muſt be abſorbed by falſe Tents. If any Blood or *Pus* be lodged under the

the *Dura Mater*, it muſt be let out with a Lancet, having an eſpecial care not to Wound the Brain. The Prudent Surgeon in this Caſe, ought to conceal his Lancet in a falſe Tent, and ſo convey it in and perform his Work, under pretence of wiping the Membrane.

THE DRESSING. In the firſt place, put into the Aperture a *Sindon* dipt in *Honey of Roſes*, and *Spirit of Wine*, and introduce this between the Skull and *Dura Mater*, to humect, deterge and attenuate the Matter. This *Sindon* is a Rag of very fine Linen, cut exactly round, through the midſt of which you muſt paſs a Thread for the drawing it out, in dreſſing of the Wound. It muſt be larger than the Aperture, for the conveying the benefit of the Medicines, with which it is imbibed to the neighbouring parts, and preſerving the *Dura Mater* from being hurt by the Aſperities of the Bone, when the Brain is dilated. Over this *Sindon* apply another arm'd with proper Medicines, and then fill the remaining part of the Aperture with pledgits dipt in ſome vulnerary Liquour. Next lay a large Pledgit of dry Lint to cover the Bone, and between the Lips of the Wound, put in Doſils arm'd with ſome good Digeſtive made of *Turpentine*, and the *Yelks of Eggs*, in the laſt place cover all with an Emplaſter, and keep it on with the Bandage, called the *Great Cap* for the Head.

To make this, Take a large Napkin and fold it lengthways unequally, or in ſuch manner that it want three inches of being folded in the midſt. When you have thus diſpos'd it, take it in the midſt, ſo that the four Fingers of each Hand be placed under, and both the Thumbs over it, and bring it behind the Patients Head, and not before, for fear of ſtriking him over the Face with it. Before you place the Napkin on the Head, bid a Servant keep the Dreſſings on with his Hands, for fear of throwing them off, or diſordering the Compreſſes and Emplaſters. Then apply it on the Forehead; ſo that that part which is three inches longer than the other, may fall on the Noſe, and bid a Servant hold the two upper ends under the Chin, or let the Patient do it himſelf if he be able, and do you take the two lower ends and draw them ſtreight to the ſide of the Head, with both Hands (thus ſeveral Pleats will be made on the ſide of the Head, reſembling a Gooſe Foot) then bring theſe two ends behind the Head, and croſſing them there, pin them where they end. In winding the Napkin round the Head, it forms two great Sacks or Baggs which fall on the ſides,

wherefore

wherefore take the two ends which the Servant held in one Hand, and ſlide your other Hand open into the Baggs, and draw them down, ſo that they may make as few folds as poſſible, then bring them to the top of the Head, and apply them to the leſſer Angles of the Eye. Be careful where they croſs each other on the top of the Head and behind, to make every thing ſit very well, and Pin them. In the laſt place, tie or pin the two ends which you gave the Servant to hold under the Chin. When the Dreſſing is thus finiſhed, let the Patient be laid down, and proceed in a proper Method for his Cure.

THE CURE. The Patient muſt be dreſt twice a day after the manner above deſcribed, and the parts round the Wound embrocated with *Oyl of Roſes*, with the addition of a little *Spirit of Wine*. But obſerve here, the Head ought to be ſhaved before the uſe of theſe Applications. One of the principal cares of the Artiſt ought to be, to procure a laudable Digeſtion in the External Wound, nothing gives the Patient greater Relief than this; becauſe the *Dura Mater* has a great Communication with the Teguments, by means of the intervening Blood-Veſſels. The Patients Chamber muſt be kept in a Temperate warmth, with a good Fire in it, if the weather be Cold. The Wound muſt never be opened without a Chafingdiſh of Coals, and the Curtains drawn cloſe, to prevent the Air from corrupting it.

Sometimes the Inflammation of the *Dura Mater* is ſo violent, that it forces it ſelf out through the Perforation of the Skull; to remedy this Accident, you muſt ſtop well the Hole, and have Recourſe to Bleeding, Clyſters, and a cooling Diet.

In Wounds of the Brain and *Dura Mater*, there ariſes ſometimes a *Fungus* or ſoft fleſhy Excreſcences, which are formed out of the Oyly Subſtance, which abounds in the Brain. When theſe Tumours happen apply Deſiccatives, as *Spirit of Wine*, *Tincture of Aloes*, *&c.* and ſhun all greaſie Medicines. If theſe fail, uſe the more mild Cathæreticks, as *Turpentine dryed and powder'd*, *Powder of* Iris Florentina, *Burnt Alum*; or laſtly, if theſe are not ſufficient, *Red precipitate*. Obſerve here for the more eaſie conſuming the Excreſcences, the Wound muſt be ſo filled, as to compreſs them a little.

Next after theſe the Decoctions of the Vulnerary Plants boiled in *White-wine*, with a little *Honey of Roſes*, are to be commen-

commended. In ſhort, Deſiccative or Humecting Medicines are proper, according to the different condition of the Wound. But of whatever kind the Applications are, they ought to be actually hot, and that to as high a Degree, as the Patient can well endure them.

If the Fleſh be firm and ſound, the Surgeon muſt endeavour to keep it ſo; but if it be flabby and ſoft, he muſt compreſs it, and apply good Reſolvents.

The Pledgits which are laid on to the Bone, ought to be dipt in ſuch Spirituous Liquors, as promote exfoliation, for which intent Tincture of *Euphorbium* is excellent.

Beſides Local Applications, Internal Medicines muſt be given as occaſion requires, and the Body always kept open.

In all his Dreſſings, a prudent Surgeon muſt be careful not to uſe foul Cloths, or ſuch as have before been made uſe off in ill conditioned Sores (as is done in Hoſpitals, where they boyl all the Raggs in a Lee, and after uſe them again) becauſe there remain in their Pores ſome Acid Corroſive Spirits, which excoriate and gangrene the *Dura Mater*. All Oleous and Acid Medicines are injurious to the Membranes, the firſt, becauſe they ſtop the Pores, and hinder Tranſpiration; and the laſt, becauſe they coagulate the Humours, and create Obſtructions.

There is no certain time can be aſſigned for the exfoliation of the Bone, ſometimes it is compleated ſooner, ſometimes later. The *Callus* which fills the Aperture, is moſt commonly formed in 40 or 50 Days. It is ſooner perfected in young, than in old Bodies, but is never ſo firm as the Natural Bone.

Before I leave this Subject, I ſhall preſent the Reader with an inſtance out of *Fabricius Hildanus*, of his Proceſs of Cure in a Fracture of the Skull. This Author tells us, in a certain Caſe, he began the Cure, by giving the Patient a Clyſter, and after that was come away ſhaving his Head, and embrocating it with *Oyl of Roſes* and *Myrtils*. Next he made a Crucial Inciſion, raiſed the Teguments, cleared the *Pericranium*, laid the Skull bare, and filled the Wound with fine Tow wetted with the white of an Egg. The next day he removed ſeveral Fragments which were broke off from the firſt Table, and applyed the Trepan. And the Patient being in vehement Pain, he laid on the *Dura Mater* a ſmall Sattin *Sindon*, humected with *Honey* and *Oyl of Roſes*, and filled up the Hole with the following Digeſtive. ℞. *Turpentine waſhed in Sage and Betony Waters*, ℥i. *Oyl of*

Roſes, ℥iß. *Yelks of Eggs*, ℥ij. *Gum Elemi diſſolved with theſe Oyls over a gentle Fire, and ſtrained*, ℥i. *Add to theſe Saffron in powder*, ʒi. *Yelks of two Eggs, Mix theſe together into an Unguent.*

After having applyed this Mundificative to the Wound, he laid on an Emplaſter of *Baſilicon*, embrocating the whole Head and Neck with *Oyl of Roſes* and *Myrtles*. The ſame day he gave him a Clyſter, preſcribed him a Regular Diet, continuing to treat him in this manner for ſeveral Days. In the mean time he diſcharged the *Pus* through the Aperture, and by degrees the Fever and other Symptoms abated.

After the Pain and Inflammation were abated, he mixed ſome drops of *Spirit of Wine* with *Honey of Roſes*, to lay on the *Dura Mater*, applying to the Wound it ſelf this Detergent. ℞. *Root of Avens, Angelica, Round Birthwort*, Iris Florentina, ā. *in powder*, ℥i. *Extract of Sage and Betony*, ʒij. of *Gum Elemi diſſolved in Oyl of Roſes*, ℥ij. *Mix theſe in a Mortar, and make an Unguent with a ſufficient quantity of Honey of Roſes, and a little Spirit of Wine*, and then apply it to the Aperture. Next he laid over all the following Emplaſter. ℞. *Emplaſter of Betony*, ℥iiij. *Gum Elemi diſſolved in Oyl of Roſes*, ℥i. *Damask Roſes, Myrtils in powder*, ā. ℥i. *Maſtich*, Calamus Aromatticus, *Angelica, Avens*, ā. ℥i. *with a ſufficient quantity of Oyl of Roſes and a little Wax, make an Emplaſter.*

During the whole Proceſs of the Cure, he gave him conſtantly Clyſters once every other Day, or ſometimes every Day, if he did not go to Stool, purging him upon occaſion with the Solutive Syrup of *Rhubarb, Agarick, Senna, Manna* and *Caſſia*, till the Patient was entirely cured.

REMARKS.

Fabr. Hildanus, Cent. 1. *Obſ.* 13. relates that he had ſeen a Woman who after receiving a Contus'd Wound on the right Parietal Bone (which was broken and depreſſed by the blow) vomited Bile and crude Aliments. He took off about 4 fragments of the Bone, and a ſmall portion of the Brain about the bigneſs of a Bean. The next day he removed more Splinters of the Bone with a Portion of the Brain about the bigneſs of a Hazel Nut, he continued to take off ſeveral more ſmall Portions of the Brain, notwithſtanding which the Patient was perfectly cured.

In

In the ſame Obſervation he aſſures us, he had ſeen a Maid wounded on the Head, who had ſeveral large Fragments of Bones taken out, and the *Meninges* being rotten, one ſide of the Brain lay bare. For the ſpace of three weeks together, the Surgeon was obliged to remove ſome Portion of it, which Nature ſeparated, ſo that one part of the Brain was entirely taken out; However it lay thus open, ſeveral Carnous Tubercles ſprung up on its Subſtance, of which each was as big as a Vetch. Theſe Tubercles ſenſibly encreaſing, joyned one to another, forming a pretty ſolid Carnous Tegument, which filled all the Cavity of the Brain, and covered it, and the Girl in all appearance recovered her Health, but the Cure of this Wound being neglected, ſhe dyed ſix Months after. That which occurr'd moſt worthy of Remark in this Caſe, was, that in the beginning of this Cure, the Patient did all her ordinary buſineſs about the Houſe, as if ſhe had been perfectly well, without any Pain or Fever.

Some Years agoe, there was in the *Hôtel Dieu* at *Paris*, a certain Woman who receiving a blow on the Head, the Teguments were all corrupted, and a Moiety of the Skull was laid bare. Both Tables exfoliated, ſo that part of the Frontal Bone, and a Moiety of the two Parietal Bones came away all at a time; and this Bony Caſe being removed, the Brain lay bare, and its Motion was very diſcernible. By degrees it was covered again by a Carnous Matter, which conſolidated, but this Cover never arrived to ſuch a degree of hardneſs, as to reſiſt the impreſſion made by the Motion of the Brain. Upon the leaſt touch imaginable with the Finger on this Carnous Membrane, the Woman inſtantly ſeemed to ſee a thouſand Candles. She had a Cap of Lead made to cover the part, and defend it from external injuries, and carryed about the exfoliated Bone, as a Cup to receive Alms in.

The ſame Author, *Cent.* 3. *Obſ.* 12. informs us, he had ſeen a Child of 10 Years of Age, who had a great Depreſſion on the Occipital Bone upon a Fall: No dangerous Accidents appearing at firſt, the Parents neglected the Cure. The Child who before was very witty, loſt his Memory and Judgment, and was rendred incapable of Study or Learning a Trade, and at Thirty ſix years of Age, became perfectly Stupid.

He farther relates, that a Child of three Years of Age falling upon his Forehead, made a Depreſſion large enough

to turn the little Finger in; no other Application was uſed, beſides a Compreſs dipt in *Spirit of Wine*, and renewed every day, and the Child was perfectly cured without any inconvenience remaining behind. Theſe Relations compar'd make it evident, that the Functions of the Soul are not performed in all parts of the Brain, ſince the depreſſion of the Occipital Bone in one produced a Stupidity, and yet in the Frontal, the ſame Accident was attended with no conſequence prejudicial to the Patient.

If Wounds of the Head are attended with extraordinary Accidents, they ſometimes prove very ſerviceable to the Patient. *F. Hildanus, Cent.* 2. *Obſ.* 8. aſſures us, that a certain Perſon having the *Cranium* fractured at the Concourſe of the Sagittal and Coronal Suture, by this Wound was cured of a *Vertigo* of long ſtanding. There remained a ſlight Ulcer on the place of the Fracture, which perhaps effected this cure by the diſcharge of Matter.

Sckenkius tells us, a certain Epileptick Perſon happening to have a Fracture on the Skull, was by this means cured of a Diſtemper, with which he had been for many years afflicted.

Riverius Cent. 1. *Obſ.* 37. relates the Hiſtory of a young Girl of 7 years of Age, who for the ſpace of two Months, had been tormented with ſo violent a Pain in her Head, extending to the Eye-brows, that ſhe begged to have her Head cut open with a Knife. This vehement Pain flung her into two or three violent Fits of an Epilepſy to that degree, ſhe foamed at the Mouth. At length ſhe died, and a great quantity of *Pus* burſt out of her Noſtrils, which cauſed the Phyſicians to believe, there was an Abſceſs in the Brain. To diſcover which they opened the Head, but nothing appeared there, beſides a ſerous Moiſture. But if theſe Gentlemen had opened the Frontal *Sinus*, it is very probable they would have found an Abſceſs in thoſe Cavities; for moſt of thoſe Abſceſſes which find an Exit by the Noſe, do not proceed from the Brain, (ſince there is no paſſage for thence,) but are diſcharged from the Cavities of the Eye-brows or Cheeks.

CHAP.

CHAP. XXII.

Of the Fiſtula Lachrymalis.

THIS Operation is *an Inciſion made near the greater Angle of the Eye, to diſcharge the* Pus *in a* Fiſtula *of that part.*

THE CAUSE. The Tumour proceeds from a ſharp Saline Humour, which flowing through the Lachrymal Ducts, corrodes and tumefies the ſmall Caruncle ſeated in the greater Angle of the Eye, from whence it comes to paſs, that the Tears finding no paſſage into the Cavity of the Noſe, through the perforations made in the Lachrymal Bone, they muſt of neceſſity run down the Cheek, while on the other hand, the Acid and Corroſive parts of the Lachrymal Humour, excoriate the Caruncle, and form an Ulcer, which ſoon degenerates into a *Fiſtula.* The Corroſive Serum is not confined to the Gland, but very often extends its malign effects farther, and Cariates the Bone, which hapning. makes the Operation abſolutely neceſſary. However, we muſt not imagine that the Lachrymal Humour is ever the Original of this Malady; for ſometimes there happens to be an Abſceſs or Inflammation in the Lachrymal Gland it ſelf, without the *Lympha's,* being in any manner concerned in it. When this happens, there is *Pus* always lodged in it, which is ever diſcharged through the Noſtrils, when the Patient ſqueezes the place, as moſt commonly they do once a day, to avoid the Pain and Trouble of the Operation. If the Patient be careful to diſcharge the *Pus* in this manner, the Tumour often do's not encreaſe, and it may remain his whole Life-time, without any notable inconvenience.

THE SIGNS of a *Fiſtula Lachrymalis,* are an involuntary flowing of the Tears down the Cheek, which notwithſtanding is no certain proof, ſince a ſimple Obſtruction or Inflammation of the greater Angle of the Eye, may ſuffice to produce this effect. The infallible Mark of a *Fiſtula,* is a *Pus* flowing out of the corner of the Eye, or by the Noſe. If the Bone be not corrupted, the Cure may be more eaſily accompliſhed.

In Searching to find whether the *Fiſtula* terminate in the Bone or not, obſerve if there be a hard Subſtance which reſiſts the Probe, without any Pain at all; for in this Caſe it is evident the Bone is bare, ſince if the *Perioſteum* cover'd it, the Senſe would be exquiſite, and the Probe cauſe great pain. If the Bone be ſmooth and even, and the *Pus* which comes away be neither thick nor Oyly, it is a Mark that it is ſound; on the contrary, if the Bone be rough and uneven, it is Carious.

The OPERATION.

Place the Patient in a Chair, and let his Head be kept ſteddy by a Servant, then bind up the Sound Eye to prevent his ſeeing the Inſtrument, and make a Semicircular Inciſion with a Knife on the Tumour. In doing this, be cautious of cutting the Eye-lids, for this would cauſe a deformity never after to be removed. Try with the Probe, whither the Bone be carious in order to dilate the Wound; for if the *Caries* extend beyond the Inciſion, you muſt open farther with the Lancet, or a Spunge-Tent to lay the *Caries* bare.

If after Inciſion you find the Bone Carious, the Actual Cautery muſt be applied. When Inuſtion is neceſſary, place a Probe on the Bone, and on this a *Cannula* or Pipe, which in its upper part is made after the form of a Tunnel, take out the Probe, and introduce an actual Cautery into the *Cannula*, and paſs it lightly over the Cariosity. The uſe of the *Cannula* is to direct the Cautery, and prevent it from burning the adjacent parts.

It is common to pierce the Lachrymal Bone thro' with the Cautery, but this ſeems to be needleſs; becauſe this Bone being corrupted by the *Pus* lodged in the *Fiſtula*, and by the Air and Medicines applied to it neceſſarily exfoliates, and being very thin comes away entire, and ſo leaves a hole on the ſide of the Noſe.

THE DRESSING. After the Operation is over, fill the Wound with ſmall Doſſils of dry Lint, and lay on a dry Pledgit, a ſmall Emplaſter and Compreſs, and keep on all with the Bandage.

The moſt plain and ſimple Bandage, is made with a Handkerchief folded Diagonalwiſe, or form of Triangle. Take this in both Hands in the middle with your Thumbs on, and your fingers under it, paſs it behind the Head, and apply

ply its middle on the Eye, ſlide your Hands on the Handkerchief behind the Head, and engage it there with the two other ends, which you muſt bring before, pinning them where they end. This Bandage is proper for all parts of the Head.

Another ſort of Bandage for the Head, may be made after this manner. Take a Roller two Ells in length, and an inch and a half broad, apply the end of the Roller obliquely on the Parietal Bone, paſs this over the part affected, deſcending on the oppoſite Cheek, and ſo paſſing behind the Head, and then again over the Eye affected, making three rounds in the ſame manner as the firſt; then bring it ſeveral times round the Forehead, and laſtly faſten it.

If there be occaſion to bind up both Eyes, you muſt proceed in this manner; take a double-headed Roller an inch and a half broad, and four Ells in length, apply the Roller behind the Head, then bring each end of it over each Eye, croſſing it on the Noſe, next deſcending over the Cheeks, paſs behind the Head, returning on the ſame Rounds of the Roller made the firſt going about the Head; then bring the two ends of the Roller about the Forehead, and continue your Rounds about the Head, till the Roller is ſpent, and then faſten it. Theſe laſt Turns of the Roller about the Head, ſtay the firſt made on the Eyes.

THE CURE. Let the Patient lie on his Back, that by this means the Tears may paſs off by the Orifice that you have made. The Curioſity of the Bone, and the *Callus* of the *Fiſtula*, muſt be both entirely deſtroyed, before the Wound is capable of being cured; and therefore the Superfluous Fleſh muſt be conſumed with ſome effectual Cauſtick.

The Cure of a *Fiſtula*, principally conſiſts in conſuming the *Callus*, and after that is remov'd healing the Ulcer; for this purpoſe if neceſſity require, you muſt enlarge the Orifice of the *Fiſtula* by Tents made of *Elder Pith*, *Roots of Birthwort*, or *Spunge prepared with Wax*. Dryed *Gentian* Root alone is good, or the ſame ſmear'd with ſome emollient Unguent. This Root has two good effects, when it is armed with ſome emollient Unguent, *viz.* It ſoftens the Calloſity, and widens the Mouth of the *Fiſtula*, and when it is drawn out, is commonly Swoln to twice the ſize it was when put in. To make this more effectual, you may ſometimes ſtrew on it *Burnt Alum*, by which means you may dilate and conſume the Calloſities at once.

When the Callofities are removed, and the Exfoliation and Suppuration compleated, cleanſe the Ulcer with Detergent Injections made of *Spirit of Wine*, *Juyce of Tobacco*, *the* Exuviæ *of Serpents powder'd*, *or* Hydromel. The following Medicine is good, ℞. *Honey of Roſes*, ℥iij. *Spirit of Wine*, ℥ß. *Sweet præcipitate*, ℈ß. Mix theſe and inject them. The Doſe of Præcipitate muſt be encreaſed or leſſened, as Circumſtances ſhall require. *Plantain Water with* Mercurius Dulcis *mixed*, is very good to make warm Injections with. *Juice of Crabs pounded with Leaves of Tobacco*, and after preſt out and mixed with *Mercurius Dulcis*, is an excellent Mundificative; and *Mercury* mixt with Vulneraries, is one of the beſt Detergents, in the World. The following Medicine ſucceſſively Deterges Conſolidates, and Cicatrizes all ſorts of *Fiſtula's*, without having recourſe to actual Fire. ℞. *Clarified Honey*, ℥ij. *Boil it to a Viſcid Conſiſtence, and when it begins to cool, add to it Aloes, Frankincenſe well Powder'd*, ā. ℈i. *Aſſa fœtida pulveriſed*, ℥iß. *beat theſe together very well for a conſiderable time in a Mortar, to the conſiſtence of an Unguent.*

Before I leave this Subject, I ſhall preſent the Reader with *Hildanus*'s proceſs in curing a *Fiſtula Lachrymalis*, in the left Eye of a Child of 13 years of Age, which he had had for four years. This was reputed incurable; for not only the Bone was Carious, but the Lachrymal Gland was ſo corroded, that the Tears ran plentifully through the *Fiſtula*, when the Child cryed, who was very Refractary, and would not ſuffer the Actual Cautery to be applyed. In the firſt place he preſcribed a good *Regimen*, purging the Patient with Medicines adapted to his Conſtitution. Next he applyed a Seton to his Neck; after the Seton had diſcharged it ſelf for ſome time, he applyed a Potential Cautery on the Seton, to enlarge the Orifice, which was very ſtreight. After the Eſcar was ſeparated, he dilated the *Fiſtula*, and laid it open quite to the Bone with an Eſcarotick Unguent, and Spunge Tent, and filled the *Fiſtula* with powder of *Euphorbium*, applying over it an Emplaſter made with *Gum Elemi*, without any other Mixture. In this manner he continued to treat the Patient for ſeven Weeks; after which the Bone exfoliated; and when this was effected, he put ſome few drops of good Balſam with Lint into the Wound, which ſoon after healed and the *Fiſtula* was entirely cured. Sometime after he took off the Seton and cicatrized the Wound. *Fabr. Hildanus*, ſets a great value on powder of *Euphorbium*, in the Cure of *Fiſtula's*.

There

There is another Method of curing theſe *Fiſtula's*, delivered by *Hildanus*, *Cent.* 6. *Obſ.* 3. He begins the Cure by an exact Diet, then purges off the moſt predominant Humours; Next he fortifies the Head with Medicines, both Internal and External. The Internal are Decoctions of *Guajacum*, *Sarſaparilla*, *Saſſafras*, *China*, *Betony*, *Sage*, *Roſemary*, *Marjoram* and *Primroſes*. Conſerves of *Betony*, *Roſemary*, *Sage*, *Primroſe*, *Piony*, *Confection of Alkermes*, *Citron Peel*, and other of the like Nature.

The External are Powders of *Benzoin*, Styrax Calamita, *Maſtich*, Olibanum, *White Amber*, *Grains of* Kermes, *Roots of* Iris Florentina, *Flowers of Betony*, *Roſemary*, *Marjoram*, *Red Roſes*, which are to be ſtrewed on the Head, or applied with quilted Caps.

Next he makes revulſion of the Matter, which diſcharges it ſelf on the Eye; for which purpoſe he commends Cupping-Glaſſes applied to the Shoulders, and Veſicatories behind the Ears. Setons are of more uſe ſtill, becauſe they potently attract the Matter, which otherwiſe would make its way to the *Fiſtula*, and purge and ſtrengthen the Head. He aſſures us, Setons are of ſo great importance in the Cure of Lachrymal *Fiſtula's*, that many times it could not be effected without their Aſſiſtance. Before the Seton be made, the Body ought to be very well purged, and the Seton ought to run for ſome time, before you proceed to the Cure of the *Fiſtula*.

After theſe Preparatives, the Wound muſt be dilated with a piece of *Gentian Root*, *prepared Spunge*, or ſome good Cauſtick. The Patients Eye muſt be kept very cloſe, and very well guarded when Cauſticks are applied, to prevent their running into it, when they begin to melt; ſome Authors open *Fiſtula's* with one or two drops of Oyl of *Vitriol*, or *Aqua Fortis*, and conſume their Callofity with theſe Cauſticks, but this Practice is to be condemned, becauſe the ſound Bone is corroded, and damaged by theſe Acid Liquors.

After the *Fiſtula* is laid open, Doſſils with *Præcipitate* prepar'd, ought to be put into the Wound, and over them an Emplaſter with *Gum Elemi*. This Powder muſt be put into the Wound once or twice a day, according as the Ulcer is more or leſs moiſt, and it is beſt to dreſs it but once a day. It is not convenient at firſt to ſearch the Wound with a Probe, to diſcover if the Bone be carious or not, it ſuffices to put the preceding Powder into it, for this will

will eaſily waſt the redundant Fleſh, and if the Bone be ſound, it will cleanſe and Cicatrize the Ulcer without effecting that.

If the Bone be Carious, it muſt be laid bare as far as is poſſible, and filled with *Euphorbium*, in fine Powder; This is the beſt Remedy in the World againſt a Cariosity, and there is no reaſon to apprehend its exceſſive Acrimony, But obſerve here, Powder of *Euphorbium* is never to be mixed with common Oyl, according to the abuſive practice of Apothecaries; for this obtunds its Virtue and Strength, beſides common Oyl is injurious to the Bones, as well as the Acid Spirits of *Vitriol*, *Sulphur* and *Aqua Fortis*. Some Practitioners in Carioſities of the Bone in Lachrymal *Fiſtula's*, make uſe of the Actual Cautery, but Powder of *Euphorbium* is preferable.

When the Ulcer is ſufficiently deterged with Powder of *Præcipitate* well prepared, and the Fleſh almoſt grown up, ſome good Balſam may be applied to make a fair and ſmooth *Cicatrix:* And in the time of Dreſſing, ſome Drops of the following *Collyrium* muſt be put, three or four times a day, into the Eye. ℞. *Plantane and Roſe Water*, ā ℥iß, *Water of Eye-bright and Valerian*, ā. ℥i. *Seeds of Quinces reduced to Powder*, ℈i. Mix theſe, and leave them to *infuſe 7 or 8 Hours, then ſtrain them, and add to the Liquour Tutty prepared, Lead calcined, Burnt Harts-horn prepared*, ā. ℥i. *Camphire*, ℈i. *Mix theſe very well in a Mortar, and make a Collyrium, which is to be applyed very Hot.* Obſerving this Method, the Patient (our Author aſſures us) by the Bleſſing of God may be cured.

REMARKS.

Fab. Hildanus, Cent. 2. *Obſ.* 14. tells us, that a young Man happening to have a Vein in the inner Angle of the Eye opened, a great Flux of Blood enſued, which proved fatal to him.

CHAP.

CHAP. XXIII.

Of Cataracts.

THIS Operation is *a Punction made in the Globe of the Eye, with a Needle to depreſs a certain Opake Membranous Concretion which covers the Pupil, and hinders the Tranſmiſſion of the Rays of Light.*

THE CAUSE. Authors who pretend to aſſign the Cauſes of Cataracts, differ very much in their Opinions; ſome conceive, they are no more than an Obſtruction of the pupil, made by the Viſcoſity of the Aqueous Humour, which is incloſed between the *Cornea* and *Uvea*; others believe it is a ſmall Webb, ſpread before the Chryſtalline Humour. Others again imagine it is a ſmall Film, which ſeparating it ſelf from the Chryſtalline floats in the Aqueous Humour, and are perſwaded that all the Parts are exiſtent in the firſt conformation, that *Cyſtis's* are never formed *de novo*, but are only Membranes diſengaged from the Neighbouring parts, which encreaſing in thickneſs, receive nouriſhment from the parts, to which they adhere. This Opinion they pretend to confirm, by obſerving that Cataracts are a Texture of ſeveral pellicles or thin Films, applied over one another, which may be eaſily diſcovered when the Cataract is Ripe. They farther pretend to evince, that a Cataract is only a Membrane diſengaged from the Body of the Chryſtalline, becauſe if it be depreſſed after it is perfectly formed, the Chryſtalline Humour is depreſſed together with it. And they endeavour to perſwade us, that by this means the Rays of Light wanting that due Modification in the Chryſtalline Humour, which is required for diſtinct Viſion, all Objects appear confuſed after the Cataract is couched, and the Patient is obliged to wear Spectacles.

THE SIGNS. If the Cataract be black, yellow or leaden, it is for the moſt part incurable. Its thickneſs and adhæſion, is the reaſon why in making the Operation, there happens a Laceration of the Pupil, and this being diſabled from conſtringing and relaxing it ſelf, all the Rays of Light which enter the Eye, ſtrike on the *Retina* in a diſorderly manner, and make a confuſed Viſion.

Blue and Greeniſh Cataracts, or ſuch as are of the Colour of Pearl or burniſhed Iron, are Curable by Couching them with the Needle.

When there is no perceptible Motion in the Pupil, it is a ſign the Cataract is fixed to the *Uveà*; This is inſeparable from old Cataracts, and ſuch are not to be medled with.

The way to find whether the Cataract be firm enough to admit of Operation, is this. Put a Convex-Glaſs, or a Viol of Water before the Patients Eye, and behind this ſet a lighted Candle. If the Patient can diſcern any Colours through theſe, it is a ſign the Cataract is not Ripe, but if he can not, it is time to depreſs it.

Cataracts hapning after Fevers and violent Headachs, are difficult to Cure. Cataracts are more eaſily cured in Children, than in grown Perſons.

Cataracts in their beginning, when Objects ſeems to appear as through a Cloud, are called Suffuſions. Some Cataracts have the conſiſtence of Parchment, and theſe have an Elaſtick quality, and when they are depreſt ſpring up again, cover the Pupil of the Eye, and fruſtrate the Operation.

The OPERATION.

When you are well aſſured the Cataract is in a condition to admit of it, proceed to the Operation. The Spring and Autumn being the moſt temperate, are for that Reaſon the moſt proper Seaſon for this purpoſe. When you undertake this, chuſe ſome fine Day, bind up the Patients ſound Eye, and then place him in a Chair with his Face turned toward the Light; your ſelf ſitting on a Seat directly before, and ſomething higher than him, and a Servant being placed behind to keep his Head on his Breaſt. When all things are diſpos'd in this manner, bid the Patient turn the Eye affected towards his Noſe, that ſo the *Tunica Conjunctivá* may be more apparent. Then take a hafted Needle, ſome of which are Flat, ſome Round, ſome Three-corner'd, and with this pierce the Conjunctive Tunick cloſe to the *Cornea*, on the ſame ſide with the leſſer Angle of the Eye. But obſerve here, carefully to avoid hurting the Veſſels of the *Conjunctiva*. When the Needle is in, you muſt boldly thruſt it to the mindle of the Cataract, and keep it depreſt below the Pupil. If the Cataract do's not ſpring up again, the Operation

tion is well performed; but if it do's riſe, you muſt keep it down with the Needle, till it is entirely Subjected.

The Needle muſt be of well poliſhed Steel, and before you thruſt it into the Eye, you ought to paſs it through a piece of Woollen Cloth, or the Brim of a Hat. This ſmoothens it, and takes off any roughneſs or inequality, which might put the Patient to pain.

When the Needle is drawn out, you muſt cloſe the Eyelids, and not preſent Objects as ſome do, to try if the Patient can diſcern them; becauſe the Cataract as yet not being ſecured in the place where it is lodged upon the Motion of the Eye, is apt to riſe. Becauſe the too ſudden ſtriking of the Light on the Filaments of the *Retina* after a long Diſuſe, muſt inevitably prove hurtful to it, and cauſe Dangerous Conſequences.

THE DRESSING. This conſiſts only in applying a Pledgit dipt in a *Collyrium* made of *Plantane* and *Roſe-Water*, with the white of an Egg, and over this a Compreſs kept on with a Handkerchief folded croſs-ways, or any of the Bandages uſed in the *Fiſtula Lachrymalis*, which have been amply deſcribed in their proper places. Obſerve that the ſound Eye ought to be bound up to reſtrain it from Motion.

THE CURE. The Patient muſt keep his Bed for three or four Days, after which he may be permitted to riſe and repoſe himſelf in a Dark Chamber.

REMARKS.

In the *Miſcellanea Curioſa*, There is a Relation of a Studious Gentleman, who being about to divert himſelf by playing on ſome Muſical Inſtrument, one of the ſtrings breaking, the end ſtruck him over the Eye, which cauſed a vehement Pain. Cooling Ophthalmick Remedies were applied to abate the Inflammation. The Gentleman happening to wake in the Night, found he could ſee every thing in his Chamber, even to the moſt Minute Figures in his Pictures and Hangings. The Patient being ſurprized at this wonderful Accident, ſhut that Eye which had received the Blow, and found immediately he was in Darkneſs. He next ſhut the ſound Eye, and opened the other, upon which he found the Chamber, and all the objects illuminated. Then he called for a Light, but could not bear the ſtrong impreſſion which Objects made on his Eye. This Symptom laſted for ſeveral Days, ceaſing gradually. In

In the ſame Collections, *Obſ.* 93. We read of a certain Man, who having the Pox and Venereal Ulcers upon him, and being under Cure for the ſame, as the Symptoms abated; his Sight was depraved in ſuch a manner, that all Objects appeared double, but the Cure of the Diſtemper being compleated, he regained his perfect Sight.

REMARKS.

*Riverius Cent.*3. *Obſ.*45. tells us, that a very thick Cataract enſuing on an Ophthalmy of a long ſtanding, in a Girl of 8 years of Age, the ſpot ſpread it ſelf over a Moiety of the *Iris*, which at laſt he cured by a Solution of *Sal Armoniack* in *Roſe Water*, letting it ſtand in a Copper Veſſel, till the Liquour had obtained a lovely Blue Colour. The proportion of *Sal Armoniack* ought to be ſuch, as may make the Liquour moderately ſharp, and this muſt be applyed with Compreſſes.

CHAP. XXIV.

Of Delivering Women.

THIS Operation is *an Extraction of the Child, together with the Membranes which contain it, and* Placenta, *out of the Mothers Womb.*

THE CAUSE of a Bigg belly, is the Child contained in the Womb.

THE SIGNS which demonſtrate Conception, are the mutual Conjunction of the Seed of both Sexes, a more than ordinary pleaſure in the Act of Coition; becauſe at that time the Neck of the Womb compreſſes the Yard more ſtreightly, an agreeable Titillation, and leaping in every part of the Womans Body. However theſe muſt not be reputed certain Signs, that a Woman has conceived, ſince we ſee every day, that ſome are impregnated without emiſſion of Seed, or receiving the leaſt Pleaſure.

If after Reception of the Male Seed the Womb is cloſe, nothing comes away, and the Mans Yard is not ſo wet as commonly; this is a ſign that there is a Conception, and that the Maſculine Seed is retained in the Womb.

A Woman after Conception, feels ſome ſmall pain round about the Navel, and ſome working in the lower Belly, which ariſes from a ſtrong Contraction of the Womb, when it cloſes it ſelf, which creating a Motion in the Bladder, draws down the *Urachus*, which terminates in the Navel, and this creates a little pain in that part. This Commotion of the lower Belly proceeds, from the Irritation of the *Rectum* by the Motion of the Womb which lies on, and is appended to it.

It is obſervable, that the Internal Orifice of the Womb in Women who have had Children, is not ſo exactly cloſed in the time of Conception, as in Women who never had a Child.

The *Nauſea*, the loſs of Appetite without any viſible Diſtemper, a longing after odd and uncommon things, Sickneſs and Vomiting continuing for a long time together, Liſtleſsneſs, Dozineſs, Frowardneſs, and ill Humour without a Reaſon, Pains in the Teeth, to which ſhe was not ſubject before; extraordinary Spitting, Retention of the Courſes, or Evacuation of them at an unuſual time, Riſing of the Breaſts, a Hardneſs and Pain in them, the Nipple growing hard, and encreaſing in bigneſs a little (becauſe of the Repletion) the encreaſing of the little Circle, its brown Colour, the Protuberance of the Navil, the ſoftneſs and laxity of the Eye-lids, which are difficultly kept open, their heavy aſpect with a Yellow Livid Circle round them, the Eyes ſunk, their Whites Turbid, a Languiſhing look, the Blood let out bad, Emaciation, a Big belly which gradually encreaſes, all theſe after Coition are ſigns of Conception, all which ſometimes appear at once, and ſometimes only part of them.

The Reader ought here to obſerve, that ſeveral of theſe Signs happen to Maids in a Retention of their Courſes; as for inſtance *Nauſea*, Vomiting, though not ſo frequently, Riſings, Hardneſs and Pain in the Breaſt and Belly, Appetite to odd and uncommon Things, livid Eyes, their Womb may be cloſed. On the contrary, Women may ſometimes have their Courſes the whole time of their going with Child, but not in ſo great plenty as at other times.

Of the Signs which precede, and accompany a Natural Delivery.

Sometimes the Life of the Mother, as well as that of her

her Child, is endangered by haſtning her Delivery, before the Term of her going with Child is compleated.

Colick Pains ariſing from Wind impriſoned, and moving to and fro in the lower Belly, which ruſling up and down, are not directed to the lower part of the Womb, (as all Throes in a true Labour,) are no Signs that a Woman ought to be Delivered. Theſe Colick Pains are diſperſed by warm Cloths applyed to the Belly, or Carminative Glyſters, whereas theſe augment the Pains in Real Labour. Theſe counterfeit Pains, may ſometimes proceed from a Diarrhæa, or the Paroxyſm of a Fever.

The true Signs which precede a Natural Labour, and happen within a few Days before, are unuſual Pains in the Reins, the Riſing of the Belly which was above falls down, which makes the Woman walk with more difficulty than before, and Stimulates her to Urine, becauſe the *Fœtus* bears down on the Bladder; Laſtly, a Flux of Glairy Humour from the Womb which humects the Parts, and dilates the paſſage of the Infant.

The Signs which accompany Labour, are great Pains in the Back and Reins, which redoubling by Intervals, terminate at the bottom of the Belly with repeated Throes. The Woman has a fuller, quicker, and higher Pulſe than ordinary; Her Face is Red, and inflamed by the vehement efforts ſhe makes to help the Birth. The Natural parts are tumefied, becauſe the Infant ſtruggles to get out; and if Vomiting Supervene, it is a ſign that the Child will ſoon be born. This Vomiting ariſes from a certain Sympathy, between the Womb and Stomach, becauſe of the Communication of Nerves between thoſe parts.

When the Delivery is near, there happens a Univerſal Trembling, eſpecially in the Thighs and Hamms, a general Heat, and the Humours which then come away, are often tincted with Blood. The Internal Orifice of the Womb is open, which may be felt with the Finger, and the Membranes containing the *Fœtus* preſent themſelves; Theſe appear harder and tenſer, according as the Pain is more or leſs Vehement. The Pains continuing the Membranes break, and the Waters come away, and the Naked Head of the Child preſents it ſelf to the Orifice.

When all or moſt of theſe Signs appear, it is certain that the Woman is near her Delivery, whether ſhe have compleated her Term or not.

The

The OPERATION.

When you perceive by the abovementioned Signs, that a Woman is really in Labour, take care that neither her Cloaths, or any thing elſe be about her Belly, which may ſtreighten it; and give her ſome pretty ſtrong Clyſters before the Child be in the paſſage, to evacuate the *Rectum*, and provoke the Woman to go to Stool. After this make a Bed for her, if it be Winter near the Fire. The Bed ought to be ſo placed, that you may commodiouſly go round it.

If the Woman be full of Blood, take away ſome of it when the Pulſe riſes. This practice is uſeful to free the Breaſt, to aſſiſt Reſpiration, and prevent a great loſs of Blood or Fever after her Delivery. Then let her take ſome good Broth, or a new laid Egg, and let her walk in her Chamber, and from time to time take a Spoonful or two of Wine not too ſtrong, becauſe all Heady Wines, and ſtrong Liquours, are apt to kindle a Fever. When her Pains take her, adviſe her to help her Throes.

The Artiſt ought from time to time, to feel the internal Orifice of the Womb, to diſcover whether the Waters are not ready to break, which ſo ſoon as he perceives, he muſt anoint the Parts with ſome Emollient Oyl or Greaſe, and keep near the Patient to obſerve all her Motions, Complaints, and Pains, to make a Judgment whether her Delivery be near, without being obliged ſo often to try the Parts. Let the Patient ever and anon reſt on her Bed to recruit her ſtrength, but ſhe muſt not be ſuffered to lie on it too long, eſpecially if it be a low Pallet-Bed, becauſe by Walking, the Weight of the Infant dilates the Internal Orifice of the Womb, and the Pains are more vehement and frequent; on the other Hand, ſhe muſt not be too much Fatigued in her firſt Pains, for fear her ſtrength be exhauſted too ſoon.

When the Waters preſent, let them break of themſelves if the Labour be Natural, becauſe if you ſhould break them before her Delivery, the paſſage would be dry, and more difficult for the Infant to ſlip through. After the Waters are broken, introduce the Finger into the internal Orifice of the Womb, to try if the Head of the Child preſent it ſelf, which may be known if it be Hard, Thick, Round, Heavy, and equal, for all other parts would be rough and unequal, Hard or Soft, according as they differ.

For the delivering the Woman, place her on a Bed covered with a Quilt, and not a Feather-Bed, with Linen ſeveral times doubled, to receive the Blood and Waters (which come in great abundance from her) and prevent their incommoding her. The moſt convenient Poſture to place her in, is on her Back, with her Head and Breaſt a little raiſed, ſo that ſhe be neither lying nor ſitting; for in this manner ſhe will be able to breath more eaſily, and have more ſtrength to help her Pains, than if ſhe were otherwiſe, or ſunk in her Bed. Being thus placed, ſhe muſt ſpread her Thighs abroad, folding her Leggs a little toward her Buttocks, which muſt be raiſed by a ſmall Pillow underneath, to the end that the *Coccyx* or Rump-bone may give back; laſtly, ſhe muſt have her feet ſtayed againſt ſome firm Thing, and hold ſome of the Aſſiſtants by the Hand, that ſhe may better ſtay her ſelf during her Pains. The Woman muſt be encouraged to hold her Breath, and bear down her Pains as well and as ſtrongly as ſhe can. Here I muſt condemn the Practiſe of ſome Midwifes, who preſs the Superiour parts of the Belly, to thruſt the Child gently down: This bruiſes the Womb, and hinders the Delivery. The Artiſt ought to content himſelf (having, firſt Anointed his Hand with ſome Oyls or Greaſes) to dilate the inner Orifice of the Womb, putting his Fingers up into its entry, and ſpreading them in the time of her Pains, thruſting by little and little the ſides of the Orifice, towards the hinder part of the Childs Head.

When the Head begins to advance, the Artiſt muſt ſeat himſelf conveniently to receive the Child, and with his Fingers ends endeavour to put back the inner Orifice of the Womb over its Head, and as ſoon as it is advanced as far as the Ears, or thereabouts, take hold of the two ſides with his Hands, ſlipping his Fingers under the Jaws, and upon the firſt great Pain which comes, draw it forth. Here let him take great care that the Navel-ſtring be not entangled about the Neck, or any other Part, leaſt thereby the After burthen be pulled with Violence, and with it the Womb to which it is faſtned, and ſo it cauſe a Flooding, or break the ſtring. It muſt alſo be obſerved, that the Head be not drawn forth ſtrait, but moving it too and fro, that the Shoulders may more eaſily make their way, and this muſt be done without loſing time, leaſt the Head being paſt, the Child be ſtopt by the bigneſs and largeneſs of the Shoulders, and ſo be Suffocated in the paſſage. As ſoon as the Head is born, he may ſlide his Fingers under the Armpits, and draw out the reſt of the Body. When

When the Child is drawn forth, place it on its ſide with its Face towards you, leaſt the Blood and Waters which follow immediately after, ſhould incommode it, or it may choak it by running into its Mouth or Noſe, as they would do if it were laid on its Back.

If the Womans Pains continue after the Birth, and her Belly be big, and putting your Hand into her Body, you find another gathering of the Waters, it is a ſign there is a Child ſtill remaining in the Womb. If this be ſo, you muſt not endeavour to fetch away the After-birth, till the Woman be delivered of all her Children (becauſe Twins never have but one Burthen, to which there are faſtned as many diſtinct Strings and Membranes, as there are Children) and if it ſhould be drawn forth after the Birth of the firſt, the reſt would run a Risk of loſing their Lives, and beſides it would endanger a Flooding.

For this reaſon let the firſt ſtring be cut (being firſt tyed with a Thread three or four times double) and faſten the other end with a Thred to the Womans Thigh, to prevent the inconvenience it may cauſe, by hanging between her Legs; and when this is done, break the Membranes of the Child which remains in the Womb to let out the Waters, and draw it out of the Mothers Body, obſerving the ſame Circumſtances as in the firſt, after which fetch away the Afterbirth in the following manner.

How to fetch away the After-burthen.

When the Child is born the Artiſt taking the String, muſt wind it once or twice about one or two Fingers of his left Hand (for inſtance, the Fore and Middle Finger joyned together) the better to hold it, or he may take it in his left Hand, wrapping it in dry Linen, to prevent it from ſlipping between his Fingers; having done this, let him draw it moderately, and with the right Hand take another hold of it above the left near the Privities, drawing likewiſe with that very gently, reſting the while the forefinger of the ſame Hand extended, and ſtretched forth along the String towards the entry of the *Vagina*, always obſerving to draw it from that ſide where the Burthen cleaves leaſt. In performing this, he muſt avoid the Membranes of the Infant, which ſometimes hang out after the Birth, and inveſting the String hinder him from keeping it Firm. But above all things, let him be careful to draw the Burthen gently, for fear of breaking the String,

or drawing down the Womb with it, or cauſing a Flooding, which would be of dangerous conſequence. In the mean time the Woman may blow ſtrongly into her Hands ſhut, or ſtop her Noſtrils, or ſhe may put her Finger into her Throat, as if ſhe would excite Vomiting, or elſe ſtrive as if ſhe were going to ſtool, bearing down and holding her Breath, all which Motions have the ſame effect, and ſerve to looſen the Burthen, and facilitate its expulſion. If this do not ſuffice, after you know on which ſide the After-birth is ſituated, bid an experienced Nurſe-keeper preſs the Belly lightly with the flat of her Hand, bringing it gently downwards by way of Friction: When the Burthen is come away, it muſt be conſidered whether it be entire, and if the leaſt part remain behind, ſo much as the Skirts or any Clods of Blood, the Hand muſt be put up into the Womb to bring them out.

When the String is broke and the *Placenta* is retained, you muſt ſpeedily introduce your Hand into the Womans Body, and before the Womb can cloſe (having firſt anointed it with ſome Greaſe or Oyl, and pared your Nails cloſe) bring it away. This is eaſie to be done, if it do's not cleave to the Womb; but if it do's adhere, you may eaſily diſtinguiſh it from the Womb it ſelf, by the ſeveral inequalities in its Surface, and then by trying with your fingers on which ſide it cleaves leaſt, begin to diſingage it there, thruſting the end of your Fingers between it and the Womb, continuing ſo to do till it be entirely freed, and then gently draw it out. You ought to be careful in ſeparating the Burthen, to avoid ſcratching the Womb, for fear of a Flooding, Inflammation or Gangrene, and it is better to leave ſome part of it behind, than endanger ſuch Accidents.

If the Womb be not open enough to receive the Hand, anoint the Womans Privities, and introduce two or three Fingers, with which apprehend that Portion of the Burthen, which almoſt always preſents it ſelf at the internal Orifice, and draw it gently, and a little obliquely on one ſide and the other, and ſo proceed forwards, keeping what you firſt ſeized in its Membranes.

If all theſe Methods fail, and you cannot fetch it then away, you muſt have recourſe to Injections made with Decoctions of *Mallows*, *Marſhmallows*, *Pellitory*, *Linſeed*, with the addition of *Oyl of ſweet Almonds*, *Lilies*, or a bit of *freſh Butter*, theſe injected into the Womb are proper to ſuppurate,

ſuppurate, and ſo bring it away. Strong Clyſters are very Serviceable, becauſe the Patients ſtriving to go to Stool, very much aſſiſts the expulſion of the Burthen.

Bleeding in the Foot or Arm is neceſſary as occaſion requires to prevent a Fever; but if the Woman be free from it, good Reſtoratives may be given her, as Broths made of Veal or Poultry, with a little Juyce of Orange, or Wine and Water.

Of Difficult and Unnatural Labours.

You may be aſſured the Child is living if the Woman has received no Hurt, if ſhe has labour'd under no very great inconvenience during the time of her going with Child, if ſhe has enjoyed a good Health, and finds the Infant ſtir within her.

If you doubt whether the Child be alive after the Waters are broke, paſs your Hand gently up into the Womb, and take hold of the String as near the Navil as may be, to feel the Pulſe of the Umbilical Arteries, or put the Tip of your Finger into its Mouth, to feel the Motion of the Tongue.

You may conclude the Child to be Dead, if he has not ſtirred for a conſiderable time; if there be a Flux of Fætid Matter from the VVomb; if the Woman feels great pain and weight in her Belly; if the Womb be not ſtaid, but falls like a Ball from one ſide to another, on which ever ſide ſhe happen to lie, if ſhe have frequent *Syncopes* and Convulſions; if the Navel-ſtring or Burthen, have for ſome time been out of the Mothers Body; if putting the Hand into the Womb the Child be cold, the Navel have no Pulſation, and the Tongue remain unmoved; if the Head feel ſoft, and the Bones move too and fro, riding over one another in the Sutures; if the Woman has received any Hurt, or loſt a great quantity of Blood, or ſhe be not arrived at her due Term; if the Waters have been broke for a conſiderable time; if her Face be of a Leaden Colour, her Eyes ſunk, her looks faint and dejected, her Breath ill ſcented, her Breaſts decayed, her Belly fallen, without any Waters coming away from the Womb. If diverſe of theſe Signs happen together, there is good reaſon to believe the the Child is Dead.

When the Child preſents with the Feet Firſt.

When this happens, the Artiſt muſt introduce his Fingers

into the Womb to dilate it by ſpreading them. When the paſſage is wide enough, introduce your Hand into the the Womb, and if only one Foot preſent, conſider well whether it be the Right or the Left, and ſo you may better judge on which ſide the other Foot lies, which you muſt ſearch for, and ſo draw forth both together; but before you proceed thus far, you muſt be well aſſured that this is not the Foot of another Child, for you would ſooner kill both Mother and Children, than deliver her after this manner; you may eaſily prevent Miſtakes of this kind, by ſliding your Finger along the Leg and Thigh to the Twiſt, till you find the two Thighs joyned to one Body, and this way has this convenience, that at one and the ſame time, you find the other Foot in order to bring it away with the former. When one Foot is found, tie it with a Ribbon, that ſo you may not loſe that again, in ſearching for the other. When both Feet are found, taking them with both Hands above the Ancles, and holding them cloſe together, draw them till the Thighs and Hamms of the Child are come forth; as ſoon as the Knees are come out, take hold of the Thighs above them, wrapping them in a Napkin to prevent the Hand from ſliding, and then proceed to draw the Child to the upper part of the Breaſt. Then bring down the two Arms of the Child on the ſides of the Body, taking hold of his Hands near the Wriſt, rather than in any other place. This is the beſt way to diſengage them in the paſſage, and here care muſt be taken to prevent breaking them, by forcing them too much. You muſt be careful the Childs Belly and Face be downwards, to prevent the Chin from ſtopping on the Sharebone; wherefore if it be not in this Poſture, you muſt reduce it, which may eaſily be done. To effect this, ſlide the flat of one Hand to the *Pubes* of the Child, and with the other hold the two Feet, turning the Body till the Breaſt and Face be downwards; having in this Poſture brought the Child to the Shoulders, you muſt proceed to draw it out in the mean time, adviſing the Woman to bear down, that the Head may ſucceed in the place of the Shoulders, and not ſtop in the paſſage.

When the Head ſtops in the paſſage.

In this Caſe, put the Childs Thighs into the Hands of ſome one of the Aſſiſtants to draw gently, whilſt you by degrees diſengage the Head from the Bones of the Paſſage.

To

To do this, ſlip one or two Fingers of your Left Hand into the Childs Mouth, to diſengage the Chin, and with your Right Hand embrace the hinder part of its Neck above the Shoulders, and ſo draw it out above. This muſt be done as promptly as is poſſible, for fear the Child be Suffocated.

If the ſtopping of the Childs Head in the Paſſage, ariſe from its ill Poſition, turn the Face downward, ſliding the flat of the Hand over its Face to cover its inequalities, for the more eaſie turning and putting it into a more commodious Situation; but the Head and Body muſt be turned together, for fear in turning one without the other, the Childs neck be twiſted round. After theſe Circumſtances obſerved, the After-birth muſt be fetcht away as before.

How to fetch away the Childs Head when it is ſeparated from the Body, and remains behind in the Womb.

If the Head be ſmall and ſoft as in Abortions, it may be eaſily drawn out, but if it be big, the Artiſt muſt put his right Hand up into the Womb, and ſearch for the Mouth, and putting one of his Fingers into it, and his Thumb under the Chin, take hold of the lower Jaw and draw it out.

But if the lower Jaw come off from the Head, he muſt draw his right Hand out of the Womb, and ſlip in his left, and with this ſtay the Head; and in his right, he muſt take a ſtreight ſtrong Hook or Crotchet with one Branch, and ſlide it all along the inſide of his Hand, keeping the point towards it, for fear of hurting the Womb. Having introduced it in this manner, he muſt turn it to the Head, and ſtrike it into one of the Eyes, or Holes of the Ears or *Occiput*, or between the Sutures, and ſo bring away the Head, making way for it with his left Hand, when he has brought it near the Paſſage, he muſt withdraw his other Hand, which would be apt to hinder its coming away, however he muſt leave two or three of his Fingers on the ſide of the Head, to prevent the Wombs being Wounded by the Inſtrument, if it happen to loſe its hold.

If the Artiſt decline uſing the Crotcher, he may take a Fillet of ſoft Linen, three quarters of an Ell long, and three Inches in Breadth folded double, let him hold the two ends with his Left Hand, and the middle with his Right, being firſt anointed with freſh Butter, let him introduce the end of

this Fillet into the Womb, and paſs the middle over the Childs Head, then drawing the two ends of the Fillet together, let him bring the Head out.

If theſe means fail, the Artiſt muſt thruſt his left Hand into the Womb, and then ſlide in a crooked Knife with his Right, with the point turned toward his Hand, for fear of wounding the Womb. When it is in he muſt turn it to the Head, and make an Inciſion in that to evacuate the Brain, and leſſen its bigneſs. The Knife muſt be thruſt in with the left Hand to prevent hurting the Hand, and muſt be ſmall with a long Handle. If the Burthen be looſned from the Womb, it muſt be brought away firſt of all; on the contrary if it adheres firmly, the Head muſt firſt be drawn forth.

When the Childs Head thruſts the Neck of the Womb out before it.

When this Accident happens, the Woman muſt not be obliged to walk or ſtand up, but muſt be kept in her Bed with her Body lying even, and not ſo much raiſed as in a Natural Labour. You muſt omit giving ſharp Clyſters, and all ſuch things as may moiſten and relax the Womb, and when the Child thruſts forward, the Artiſt muſt have one Hand on the ſide of the Head, to put back the Womb to its proper place, continuing to do this till the Child be born, without drawing the Head as in Natural Births. But if the Child be ſtopt in the Paſſage, and be in danger of being Suffocated, he muſt draw it gently out by the Head, whilſt ſome other Perſon thruſts back the Womb with his Hands, and when this is done, he muſt fetch away the *Placenta*.

When the Childs Head comes firſt, and cannot come forth, becauſe it is too big, or the Paſſage not ſufficiently dilated.

In this Caſe the Bearing part muſt be fomented and relaxed by Oyls and Emollient Greaſes, and all endeavours uſed to bring the Child into the World. If theſe prove uſeleſs, and it be certain that the Child is dead, the Artiſt muſt no longer ſcruple to fix his Crotchet into the Head, and ſo bring it out. Before this be done, let him introduce a Catheter well Oyled into the Bladder to evacuate it, putting the Childs Head a little aſide, for the more eaſie ſlipping it in.

in. After this, let him ſlide the flat of his Right Hand into the entry of the Womb to the ſide of the Childs Head, and with the left let him introduce a Crotchet, which ought to ſhort and ſtrong, and in entring it muſt be turned to the inſide of the Right Hand; after it is in, let him turn it and ſtrike it into the middle of the Parietal Bone, and draw it gently till it has taken faſt hold; then let him take out his Right Hand, and introducing his Left Hand to guide it, fetch it out with the Inſtrument. If there be occaſion, the Artiſt may uſe another Crotchet to the oppoſite ſide of the Head, to draw the whole more equally. In the laſt place (drawing out his Inſtruments,) let him take hold of the Head with both his Hands, to bring out the reſt of the Childs Body.

When the Child preſents the ſide of the Head or the Face to the Birth.

To prevent the Childs advancing farther in this Vicious Poſture; Let the Woman lie down, and cauſe her to lean a little on the oppoſite ſide, to the Childs ill poſition, then let the Artiſt ſlide up his Hand to the ſide of the Childs Head, to bring it right. If this do not ſucceed, he muſt put his Hand up to its Shoulders, that ſo thruſting them back a little into the Womb, he may give it a Natural and Convenient Situation, after which he may proceed to deliver the Woman in the uſual manner.

If this ſucceed not, let him ſearch for the Feet, and bring them out firſt.

When the Child's Head is born, and the Body ſtopt in the paſſage by the Shoulders.

Draw the Childs Head gently, ſometimes by the ſides, ſometimes taking it with one Hand under the Chin, and with the other on the Top of the hinder part of the Head, alternately drawing one ſide and the other to facilitate the Birth. If the Shoulders cannot paſs, ſlide one or two fingers of each Hand under the Armpits, and ſo draw out the Child. If it be ſtopt by a Hydropick Belly, introduce the Left Hand into the Womb, quite to the right ſide of the Belly, and pierce that with a Crotchet (for the introducing which, you may make uſe of your Right Hand) and when the Waters are let out, bring away the Child.

When

When the Child comes with one or both Hands together with the Head.

As ſoon as this ill Poſition of the Child is perceived, it muſt be prevented from proceeding farther. The Woman muſt be placed on her Bed, with her Hipps raiſed a little higher than her Head, and the Artiſt muſt put back the Childs Hand, guiding it as much as may be, to give way to the Childs Head, which having done, if the Childs Head be on one ſide, it muſt be reduced to its Natural Poſture in the middle of the Paſſage, and ſo brought away as in ordinary Births.

When the Child preſents one or both Hands foremoſt.

The Hand or Arm muſt be thruſt as ſpeedily as may be into the Womb, and the Artiſt muſt introduce his Hand under the Childs Breaſt and Belly ſo far, till he finds the Feet, which he muſt gently pull towards him to turn it, and draw it forth, obſerving to do this with as little Violence as may be.

In introducing the Hand into the Womb, obſerve to ſlide it within the Membranes, that ſo it may turn more eaſily without hurting the Womb.

If the Arm come too far out, and cannot be put in without great difficulty by reaſon of its bigneſs, and it be certain the Child is dead, it is then adviſable to take it off as high as is poſſible, beginning with an Inciſion around it, and cutting through the Bone with ſharp Pincers, as is practiſed by *Ambroſe Parrè*. But I think it better to twiſt it once or twice round; for by this means it will eaſily ſeparate from the Body in the Articulation, and there will be no danger of hurting the Womb by the Aſperities of the Bone.

When the Child preſents Feet and Hands together:

When the Womb is ſufficiently dilated, let the Artiſt ſlide his Hand into it far enough to reach the Childs Head, and put back that together with the Hands, to the bottom of the Womb, leaving the Feet in the ſame place where he found them, to draw the Child forth by.

Obſerve that whenever the Child or any part of it is to be thruſt back into the Womb, the VVoman muſt have her Hipps raiſed.

When

When the Child preſents with the Knees firſt.

It muſt not be ſuffered to advance far in this Poſture, wherefore having placed the VVoman aright, put back the Childs Knees, and to unfold its Legs, put one or two of your Fingers under the Ham, directing them by little and little all along behind the Leg, until you reach the Foot, that ſo having diſengaged one, you may do the ſame to the other, proceeding in the ſame manner as with the firſt; after which having brought both together, deliver the VVoman in the ſame manner, as when the Feet preſent firſt, obſerving to bring the Face of it downward, and ſuch Circumſtances as are noted where we treat of that Labour.

When the Child comes with the Shoulder, Back or Breech.

The Artiſt muſt thruſt the Shoulder a little back, that ſo he may have the more liberty of introducing his Hand into the VVomb, then ſliding it along the Childs Body on the Belly or Side, as he finds it eaſieſt, and ſearching for the Feet, he muſt turn it and bring them to the Paſſage, and ſo deliver the VVoman.

If the Back preſent, he muſt ſlide his Hands along it towards the lower part, till he finds the Feet, and then draw it forth, as if it preſented with the Feet firſt.

If the Child come with the Breech firſt, he muſt gently thruſt it back, and ſliding up his Hand along the Thighs to the Legs and Feet of the Child, he muſt bring them gently one after the other forth of the VVomb, by folding, ſtretching, turning and drawing them gently towards the ſide on which it comes eaſieſt, being careful not to wind them too much, or cauſe a Diſlocation, and then let him draw forth the reſt of the Body, as if it came with the Feet foremoſt.

If the Childs Buttocks happen to be ſo far engaged in the paſſages, that it is impoſſible to thruſt it back, the Artiſt muſt draw it out in this Situation, by ſliding one or two fingers of each Hand on each ſide of the Buttocks to make his way to the Groin, with as little Violence as may be, and then having crooked them inwards, let him draw the Breech juſt out to the Thighs, and ſo by drawing and wagging from ſide to ſide, he will diſingage them from the Paſſage, as alſo the Legs and Feet one after another (being careful

not

not to Diſlocate any part) and then he may extract the reſt as before, when coming with the Feet.

When the Child preſents Belly, Breaſt or Side.

VVhen the Child preſents the Breaſt or Belly, let the Artiſt ſlide gently the flat of his Hand (being firſt well anointed) towards the middle of the Childs Breaſt, and thruſt that back to turn it, then let him ſlip up his Hand under the Belly till he finds the Feet, and bring them to the paſſage to draw it forth, obſerving always to turn it, ſo that the Breaſt and Face may come downwards.

VVhen the Child preſents the Side, the Artiſt muſt thruſt back the Body of the Child, and introduce his Hand into the VVomb, ſliding it along the Thighs till he has found the Leggs and Feet, and then turn it and draw it forth.

If ſeveral Children preſent to the paſſage together, the Artiſt muſt carefully heed which Members belong to each Child, for fear he draw them both at once; if two or three Feet come forth, let him take two, *viz.* one Right and one Left, and ſlide his Hand along the Legs and Thighs up to the Twiſt if forwards, or to the Buttocks if backwards, to find if they belong to the ſame Body, and when he is certain of this, let him thruſt back the Foot of the other, to facilitate the paſſage, and draw forth the neareſt, obſerving the ſame Circumſtances as when the Child preſents with the Feet firſt, remembring likewiſe not to fetch away the Burthen, till the Second Child be born; for ſometimes there is but one common *Placenta* to both Children, which being ſeparated from the VVomb, would cauſe a great Flooding, and be apt to incommode the Operator, nor can any remedy avail to remove this, till the VVoman be delivered of both her Children.

VVhen one Child is come away, the Artiſt muſt tie the Navel-ſtring and cut it, and after that is done, bring away the other Child by the Feet, and fetch away the Burthen as in a Natural Delivery.

If the Child preſent any other part beſides the Feet, the ſame Method muſt be uſed, which is above directed in each different Situation, obſerving to draw forth that which is fartheſt advanced in the paſſage.

VVhen the firſt Child is come away, and the VVaters of the ſecond are not broken, the Membranes muſt be torn with the Fingers to let them out, becauſe the Paſſage being dilated

dilated by the Birth of the Firſt, the Second will come away without any difficulty.

When the Navel-ſtring comes firſt.

Let the VVoman be laid very warm in her Bed, and the String replaced in the VVomb as ſoon as is poſſible, to prevent its cooling. The Artiſt muſt endeavour to put it back behind the Childs Head, and keep it there with his Fingers till the Head be fully come forth, which will hinder the coming down of it again.

If it be neceſſary to draw the Hand out of the VVomb before the Head be paſt, let him put a very fine Rag between the Head and the ſide of the VVomb, to ſtop the place where the Navel-ſtring paſſed, leaving one end of the Rag without, to draw it out when he pleaſes; and let a Compreſs dipt in VVine well warm'd be applied externally to the VVomb, to defend the Navel from the injuries of the external Air.

But if the String yet come forth upon every pain, then without further delay let the Artiſt bring the Child away by the Feet, which he muſt ſearch for, though it ſhould come with its Head; and let him gently thruſt that back, provided it be not too far advanced; for in this Caſe it cannot be done without great Violence, Pain and Hazard of the VVomans Life.

To ſearch for the Feet, let him ſlide his Hand on the Childs Breaſt and Belly, and when he has found them, turn the Child and draw it out. VVhen the Navel-ſtring comes firſt, the Child muſt be Baptized immediately after the Birth, if it be not already done whilſt it * remains in the Paſſage.

When the Burthen preſents firſt, or is come away before the Child.

VVhen the *Placenta* preſents firſt, nothing can be felt but a ſoft Body; there is a Flooding and concreted Blood comes away, and the VVoman faints.

VVhen this happens, the VVoman muſt be delivered with all Expedition, and if the Membranes are not broken, the Artiſt muſt put a little on one ſide that part of the Burthen which preſents, and break the Membranes with his Fingers, and let out the VVaters, and turn the Child at the ſame time,

* *This only regards Perſons of our Authors Religion*, viz. Roman Catholicks, *who hold unbaptized Infants are excluded Heaven.*

if

if it be in any other posture than with the Feet foremost, and draw it forth immediately.

But if the Burthen be almost come forth, and the Membranes broke, he must bring away the *Placenta* before the Child, not amusing himself with tying and cutting the string before he draws out the Child, to prevent losing one moment of time in delivering the VVoman, because the Infant is in great danger of losing its Life, and the Mother has a continual Flooding.

When there is great Floodings and Convulsions in Labour.

The best Remedy in this case, is to deliver the VVoman immediately, without the least delay, fetching away the Child by the Feet; if the Flux of Blood be very moderate, and nothing else require it, you must not forward the Labour, and the VVoman may go out her Natural Term.

If the Membranes are not broke when the Flooding appears, they must be torn as soon as the VVomb is a little dilated, because the Burthen is fixed to those Membranes, and these being extremely agitated and moved by the Pains of the Mother, the *Placenta* must consequently be moved, and a Flux of Blood ensue. If a Convulsion happen, the VVoman must be delivered immediately. This is the best expedient in this case, for the saving the Lives of both Mother and Child, if the VVomb be open; but if it be not, then let the Artist have recourse to the usual Remedies; for instance, Bleeding in the Arm or Foot (if the Accident arise from Repletion) giving sneezing Medicines or Clysters to cause Throes and dilate the VVomb, in the mean while humecting it with Emollient Fomentations.

To deliver the VVoman let the VVaters be broke, and the Child drawn out by the Feet, unless its Head be engaged in the Passage, and then fetch it by that. If the Child be certainly dead, let it be drawn out with the Crotchets, as was before directed.

When the Child is Hydropical or Monstrous.

If the Dropsie be in the Head, let the Artist gently introduce his left Hand, on the right side of the Childs Head, which he will perceive to be very big, and the Sutures separate from each other; when he finds this, let him with his right Hand slide a crooked Knife all along the inside of his

his Hand, with the point turned towards his Hand, for fear of hurting the Womb, and having conveyed it very near the Head to the place of the Sutures, turn it in that place, and make a ſufficient aperture to let out the Waters, and draw forth the Child. The ſame Method may be uſed to let the Water out of other tumefied Parts.

But if the Child be of any Monſtrous Figure, or too big, or two grow together, they muſt be diſmember'd, without which it is impoſſible to fetch them out of the Womb. To perform this, let the Artiſt introduce his left Hand into the Womb, and convey in the crooked Knife to the parts he intends to ſeparate, let him cut them off as near the Joynt as poſſible. If two Bodies are joyned together, let him ſeparate them in the place of their cohæſion, and draw out one after the other by the Feet.

When the Infant is dead in the Womb.

Give ſtrong Clyſters to the VVoman to excite her Throes, and then deliver her as ſoon as is poſſible. In order to this, evacuate the Bladder of its Urine, and if the Child preſent with its Head firſt thruſt it back, and introduce the Hand into the VVomb, ſliding it under the Childs Belly, and ſearch for the Feet, and turning it by them draw it forth, as we have ſo often directed. But here the Artiſt muſt have an eſpecial care that the Head do not remain behind, becauſe the Child is moſt commonly rotten; and when this happens, it muſt be drawn out in the manner above directed.

If the Head be too far advanced in the paſſage, it may not be thruſt back for fear of doing Violence to the VVomb, but the Child muſt be drawn forth fixing Crotchets in his Head, and proceeding after the manner we have elſewhere deſcribed.

If the Dead Child preſent an Arm, bring it away from the Body by twiſting it once or twice round, and do the ſame in other parts of the Body; and after the Child is thus brought away, collect all the parts of the Body, and compare them to ſee if any be miſſing. Obſerve here to avoid uſing Crotchets, though you are certain the Child is dead, if it can poſſibly be brought away by any other means; becauſe the Aſſiſtants and Midwives are moſt commonly very cenſorious in this caſe, and will not fail to impute the Childs Death to the Artiſt.

Of

Of a Mole and Falſe Conception.

A Mole is a Maſs of Fleſh without Bones, Joynts or Diſtinction of Members, or any regular or certain Figure, Moles have no Burthen or Navel-ſtring, but adhere to the VVomb, and draw Nouriſhment from it, and are ſometimes contained in Membranes. If VVomen caſt them before the ſecond or third Month, they are commonly called falſe Conceptions, and Moles if they are retained in the VVomb for a longer time and grow larger.

There is little difference in the Signs to enable us to diſtinguiſh between a Mole and falſe Conception; except that the Belly in VVomen who have Moles, is harder and more painful, and appears equally extended on all ſides, not riſing to a point before, and tumefies ſooner than if ſhe were really with Child. Moles are void of Life and Motion, are not encompaſt with VVaters, and attended with more inconveniences, than a Natural Conception, and the VVoman has no Milk in her Breaſts, tho' ſhe can preſs ſome Seroſities out of them.

VVhen you are aſſured the Big belly do's only proceed from a Mole, try to bring it away as ſoon as is poſſible, giving the Patient ſome Purgative Medicines, in caſe there be no Fever or Flooding; and when theſe begin to operate, give a ſharp Clyſter to excite her Throes, and when the VVomb begins to dilate, relax it with Greaſe and Emollient Oyls. Bleeding in the Feet, and half Baths are very ſerviceable in this caſe.

If a Mole be not too large, or adhere too firmly to the VVomb, it will come away without the Aſſiſtance of any Remedies; but if it cleave ſtrongly, or be exceeding large, when the VVomb is ſufficiently dilated, the Artiſt muſt ſlide in his Hand and fetch it out, or make uſe of a Crotchet or ſometimes a Knife, to divide it into pieces.

If the Mole cleave to the VVomb, he muſt ſeparate it from the part with his Fingers, which he muſt by degrees inſinuate between them, beginning in that place where it adheres leaſt, and proceeding till it be entirely looſned, having great care to have his Nails pared cloſe, for fear of hurting the VVomb.

If it be a Falſe Conception, ſlide one Finger into the VVomb, and bend it on one ſide and another, till you can enter a Second and a Third, or a Fourth, and then taking

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it between the Fingers, fetch it away together with the concreted Blood; and if no Portion happen to remain behind, the Flux of Blood will ſoon ceaſe. But if the Orifice be ſo ſmall, that the Artiſt cannot poſſibly introduce more than one Finger, let that be the Fore-finger of the Right Hand, and let him thruſt that as far as he can, and turn it about to looſen the Falſe Conception from the VVomb, and bring it away with the Finger; and if he cannot do this, let him make Injections into the Womb to ſuppurate it. The Flooding will undoubtedly ceaſe, if no part of the Conception be left behind: But if the Internal Orifice cannot be more dilated than is mentioned, and the Flooding be ſo violent as to endanger the Womans Life, the Artiſt having introduced the Fore-finger of his Left Hand, muſt take with his Right a Cranes Bill or *Forceps*, and ſliding this along his Forefinger, extract the Unnatural Body in the Womb, taking care not to pinch the Womb it ſelf, which he may prevent by guiding the Inſtrument with his Finger.

What is fit to be done to a Woman newly laid, and her Child.

THE DRESSING OF THE MOTHER. When a VVoman is Delivered, lay to her Privities a Cloſure of Linen ſix or ſeven times doubled, to prevent the cold Air from entring her Body, which would ſhut the Veſſels, ſtop her Cleanſings, and create bad Accidents; as Fevers, Pleuriſies, Inflammations, &c. Let her Bed be well warmed and covered with Clothes ſeveral times doubled, which muſt be changed upon account of her Cleanſings, but firſt thoſe muſt be removed, which received the Child in her Labour. As for her Poſture, place her in her Bed with her Head and Body a little raiſed, to give way for her cleanſing and free breathing, and let her put down her Leggs and Thighs cloſe by one another, with a little pillow under her Hams; and let her lie on her Back, that ſo the VVomb may reſume its Natural Situation. After the Cloſure is removed, let an Anodyne Cataplaſm be applied, made of two ounces of *Oyl of Sweet Almonds*, with the *Whites* and *Yelks of two New-laid Eggs*, beat and ſtirred together with a Spoon over warm Embers, till it be of a due conſiſtence. Let this Cataplaſm be applied hot, and continued on for the ſpace of three or four Hours, renewing it if there be occaſion; it appeaſes pain in the bearing part after Labour.

In the next place make a Decoction of *Barley*, *Linſeed*, *Chervil*, *Marſh-mallows*, and *Violet Leaves*, and with this foment the part three or four times a Day, for the ſpace of five or ſix Days together, to cleanſe the Privities from Clods of Blood, and other Filth which proceed from the Cleanſings.

Nurſe-keepers lay a Compreſs of a Triangular Figure, four or five times double on the Belly, to bear up the VVomb as they pretend, and two others rolled up on each ſide, to keep it directly in the middle; then lay a ſquare Napkin all over the Belly, and after that Swathe it with another Napkin three or four times double, and about a quarter of an Ell broad. But the Belly ought by no means to be compreſt for the firſt fifteen Days, and if it happen to be ſo, the Bandage muſt be removed, to anoint it well with *Oyl of Sweet Almonds*, but after that time it may be a little ſtreightned, to contract and keep the parts together.

If the New-laid Woman intend to Suckle her Child, lay a ſoft and fine Cloths on her Breaſts to keep them warm, and prevent the Milk from Curdling. If the Milk begin to come too plentifully into them, embrocate them with a Mixture of *Oyl of Roſes* and *Vinegar*, and lay on them a fine Compreſs dipt in it.

After the Cleanſings are finiſhed, ſtrengthen the Womb with a Decoction of *Provence Roſes*, and *Roots and Leaves of Plantain* in *Smiths Water*. After that uſe this aſtringent Lotion to cloſe the Parts. ℞. *Pomgranate Peel*, *Cypreſs Nuts*, ā. ℥iſs. *Seal'd Earth*, ℥ſs. *Provence Roſes*, ℥i. *Roch Alum*, ℥ij. Infuſe theſe Ingredients for the ſpace of a Night in five half pints of Claret alone, or diluted with *Smiths Water*, (leaſt the Wine alone be too ſharp) boil all till it be reduced to a Pint, then ſtrain it, and expreſs it ſtrongly, and with this foment the Parts well Night and Morning.

THE DRESSING OF THE CHILD. Put the Child into a warm Blanket, and take a brown Thread four or five times doubled, of a quarter of an Ell long, with a knot at each end to prevent its entangling. This Thread and a pair of Sciſſars, muſt ever be in readineſs againſt the time of Labour; then tie the Navil-ſtring with this Thread about a Fingers breadth from the Belly, and make a double knot, then turning the Thread round the Navil, make two other knots on the oppoſite ſide, and ſo cut the ſtring about

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a Fingers breadth more beyond the Ligature towards the *Placenta*. The Ligature muſt be ſo cloſe that no drop of Blood may paſs it, but not ſo ſtrait as to cut the Navil.

The end of the Navil muſt be wrapt round with a ſmall Rag, dry or dipt in *Oyl of Roſes*, and another doubled Rag laid on the Belly on the upper ſide, to repoſe the Navil on with a Compreſs over this, and theſe leſſer Dreſſings kept on with a Swathe of three inches broad, roll'd round the Body. The Navil-ſtring dries and ſeparates near the Belly, within five or ſix Days or thereabouts.

Let the Childs Body be cleanſed with *Wine* and *warm Water*, eſpecially the Head, Groin and Armpits, and wiped with ſoft Raggs, or a Spunge dipt in *Wine* lukewarm, or if the Excrements be very tenacious, in *Oyl of ſweet Almonds*. Let the Noſtrils and Ears be unſtopt with little Tents, and the Eyes wiped with a ſoft dry Rag.

VVhen the Childs Body is cleanſed from all the adhering Filth, view it well to ſee if no part be diſlocated, and all the Paſſages be open for the voiding its Excrements; and if they do not come away, give him by the Mouth ſome *Syrup* of *Violets* or *Roſes*.

After the Child is cleanſed, cover his Head with a little Linen Biggen, with a Woollen Cap over that, but obſerve firſt to place a Compreſs on the openneſs of the Sutures, and pin it without. Behind the Ears put Rags to dry the Filth, and then lay other Rags on the Breaſt, and in the Folds of the Armpits and Groin, and ſo Swath him in his Linen and Blankets well warmed binding him lightly on its Breaſt and Stomach. The Arms and Legs muſt be wrapt in the Blanket, and kept ſtreight lying by each other, with a little of the Blanket between to prevent them from Galling, by rubbing againſt each other, and the Head muſt be kept ſteady with a ſtay faſtned on each ſide the Blanket.

How a Woman ought to govern her ſelf during her being with Child.

The Air in which ſhe breaths muſt be Temperate, and if it be not ſo by Nature, it muſt be reduced to due temper by Art, warming if it be too cold, or cooling it if too hot.

A Pregnant Woman ought to ſhun too warm an Air, becauſe it weakens and enfeebles the Body; on the other hand,

ſhe muſt with equal Care avoid an Air which is Cold and Foggy, which may cauſe Rheums and Coughs, which putting her Body into an Agitation, may make a Concuſſion of the Womb, and cauſe an Abortion. She ought not to live in ſtrait narrow Lanes or Allies, or near common Sewers, or other ſtinking places; becauſe ill Scents will make her apt to miſcarry. She muſt avoid the noxious Fumes of Charcoal, eſpecially when not burnt in a Chimney, and alſo all Perfumes and other ſweet Scents, eſpecially if ſhe be Hyſterical.

If a Pregnant Woman has a longing after odd things, ſhe muſt be indulged, though perhaps the things ſhe deſires are improper, provided ſhe eat moderately. But if ſhe have no extravagant Appetite, let her eat any ſort of wholſom Meats, in ſuch quantity as may ſuffice for the Nouriſhing her ſelf and Child, in which her Appetite is to be a Rule. Faſting or long Abſtinence is hurtful, becauſe it heats the Blood, and conveys ill Nouriſhment to the Child, which renders it weak, and decay'd, and often makes it ſtruggle to free it ſelf before its time, and ſeek for better Food. On the contrary ſhe muſt not eat too great quantity of Meat, eſpecially at Night, becauſe the Womb in the laſt Months of going with Child poſſeſſes a great part of the capacity of the lower Belly, and hinders the Stomach from retaining much; and hence when it is overcharged, it cauſes Belches, Indigeſtion, and difficulty of Breathing, proceeding from a compreſſion of the Diaphragm, which wants liberty of Motion. Let her therefore eat little and often, and let her Bread be of the beſt Wheat, white and well baked, and not brown Bread or baked Cruſt, which ſwells in the Stomach. Let her eat good Nouriſhing Meats, as the moſt tender pieces of Beef, Veal, Mutton, Lamb, Fowl, as Pullets and fat Capons, or Partridge, Pidgeons boiled or roaſted as ſhe deſires; New-laid Eggs are very good, and Pregnant Women ſeldom having good Blood, ought to put into their Broth ſuch Herbs as purifie it, as *Sorrel*, *Lettuce*, *Succory* and *Borrage*. A Woman with Child ought to eat no High-ſeaſoned Pies, eſpecially the Cruſt which is difficult to digeſt; and if ſhe eat Fiſh, it ought to be freſh and not ſalted, and ſuch as is bred in Rivers and Running Waters, becauſe Pond-fiſh uſually taſtes of Mud, and breeds ill Juices. She may drink at Meals a little good old Wine diluted with Water. Red Wine is better than White, and ſtrengthens the Stomach, helping Digeſtion, which is always bad

bad in the time of pregnancy. If ſhe was not uſed to it before, ſhe muſt gradually accuſtom her ſelf to it, but muſt never have it cool'd with Ice, or any otherwiſe drink it too cold, for cool Liquors are apt to breed the Colick, and by conſequence endanger Abortion. On the contrary, ſhe muſt no leſs carefully avoid what is heating, ſuch as all Salt, Sharp, Bitter, Aperitive and Diuretick things, which provoking the Courſes, are apt to make a VVoman miſcarry.

VVomen with Child are apt to have a ſharpneſs of Stomach, to prevent which they muſt refrain eating of Fruits, Sallets, Sugar, and drinking of VVine, which extremely ſours all their Aliment, and laſtly keep their Bodies ſoluble.

VVomen with Child muſt have moderate Sleep, that is eight Hours at leaſt, and ten at the moſt in the Night-time, and little or none at all in the Day-time. However VVomen who are uſed to ſleep in the Day-time, muſt be indulged in this bad cuſtom, rather than do violence to Nature in breaking an ill habit too abruptly.

As for Exerciſe and Reſt, theſe differ according to the times of Pregnancy. For the firſt four or five Days after Conception, a VVoman ought to keep her ſelf in Bed, and decline the embraces of her Husband. During all the remaining time of her going with Child, ſhe muſt uſe no violent exerciſe, muſt not go in any Coach, Chariot, or on Horſeback, becauſe theſe Agitations of the Body are apt to looſen the *Fœtus*, and if ſhe have occaſion to go abroad, it muſt be in a Chair or Litter. She muſt not carry any great Burthen, or lift her Arm too high; and for this reaſon ſhe ought not to dreſs her own Head. The lifting of the Hands has cauſed many Abortions, becauſe the Ligaments of the Womb are relaxed by theſe violent extenſions. Her ſhooes ought to be low-heel'd, becauſe the Riſing of her Belly hindring her from ſeeing her Feet, ſhe is apt to fall.

If a VVoman happens to ſtumble, fall or hurt her Belly by any other Accident, and ſhe find her ſelf to void Blood, or a Bloody *Serum*, or indeed any VVater from the Womb, let her repoſe her ſelf ſome Days without ſeeing her Husband, till theſe evacuations ceaſe, and ſhe find no pain in the Reins or Bladder.

In ſhort, ſhe muſt govern her ſelf ſo in all exerciſes, as to exceed in too much Reſt rather than Motion, becauſe a much greater danger attends the one than the other; and

when ever a VVoman is adviſed to uſe exerciſe to facilitate her Delivery, it muſt ever be underſtood to be very moderate. A VVoman with Child ought to abſtain from the embraces of her Husband, the two laſt Months before her Term, becauſe in theſe Careſſes, there is a great Agitation of the Body and Compreſſion of the Belly, which often occaſions a wrong Poſture of the Child. A VVoman with Child ought to have a preſence of Mind, and to be prepared againſt all Surprizes which may happen, as Claps of Thunder, Firing of Canon, and other ſudden Noiſes, which Reſolution is difficult to be obtained.

VVomen with Child are ſubject to a Conſtriction of the Belly, becauſe the *Fœtus* preſſes on the *Rectum*, and hinders a free diſcharge of the Excrements; beſides there is uſually in VVomen with Child a certain Heat of the Bowels, which diſpoſes them to Coſtiveneſs. Let a VVoman who is ſubject to this inconvenience eat *Boyl'd Apples*, *Stew'd Prunes*, *New Figgs*, *Mulberries*, *Honey with Bread*, *Rye Bread*, *Veal Broth*, &c. and take a Clyſter of *Warm Water* frequently to humect and relax the Gut. Let her ſometimes take clean *Caſſia* ℥ß. or Veal Broth with the Emollient Herbs, and an ounce of the beſt Honey. If theſe innocent Remedies are not ſufficient, give her mild Clyſters made of a Decoction of *Mallows*, *Marſh-mallows*, *Pellitory*, and *Aniſe-ſeeds*, with two Ounces of brown Sugar diſſolved in it, adding a little *Oyl*, or a Decoction of *Bran*, adding *Honey of Roſes* with a piece of *freſh Butter*, or any other thing as occaſion requires. But here be cautious not to give ſharp Clyſters, or any thing which may excite a *Diarrhœa*, and cauſe too great an Evacuation, becauſe this will endanger an Abortion.

She muſt moderate her Paſſions, eſpecially Anger and Jealouſie; and care muſt be taken not to Surprize her with Fear, or the Relation of any Accident which may affect her with extraordinary Grief. Theſe Paſſions put the Spirits into a Diſorder, and often cauſe VVomen to fall in Labour at that very inſtant.

VVhen a VVoman finds or ſuſpects her ſelf to be with Child, ſhe muſt not as that Sex uſually do's wear Bodies with VVhale-bone, for theſe hurt the Breaſt, and compreſs the Belly, and often cauſes the Children to come before their time, and ſometimes mis-ſhapen. Theſe Nice Ladies out of affectation of ſhewing a good ſhape, ſpoil their Belly, which after they are laid is full of VVrinkles, becauſe the Skin not having liberty to extend it ſelf on all ſides, forces its way to-

towards the Thighs, where being exceedingly ſtretched, it can never after regain its priſtine State, but hangs down like a Purſe, and this Folly ſometimes cauſes them to have Ruptures. For this reaſon Big-bellied VVomen muſt have their Clothes looſe without Buskins which compreſs the Belly, and the *Fœtus* in it. In the laſt place they muſt never bath for fear the VVomb open, and an Abortion enſue.

A VVoman with Child if occaſion require may Bleed, but the Evacuation muſt be ſmall, and there is no great regard to be had to the time, provided the quantity be not too large.

Of Vomiting in Women with Child.

A VVoman has moſt commonly an inclination to Vomit in the beginning of her Pregnancy, and at ſuch times there is no great apprehenſions; but if this continue it weakens the Stomach exceedingly, and it is more apt to corrupt, than digeſt the Food. Theſe Vomitings continue till the third or fourth Month, which is the time the Child ſtirs moſt. After that time VVomen uſually begin to regain that Appetite which they had loſt the firſt Months, and this ſeems neceſſary, becauſe the Child growing greater, requires a larger ſupply of Nouriſhment. Sometimes the Vomiting perſiſts, and then the VVoman is in great danger of Miſcarrying, becauſe theſe Commotions throw the *Fœtus* lodged in the VVomb downwards. Some Women are more afflicted with this Accident in the latter Months, than in the firſt, becauſe the Stomach is compreſſed by the diſtention of the VVomb. This Vomiting when it happens to VVomen whoſe Children lie high, do's not ceaſe till their Delivery.

You need not be concerned if a VVoman Vomits in her firſt going with Child, if this be not attended with any extraordinary ſtraining, but if it perſiſt after the fourth Month, ſome Remedy muſt be uſed; becauſe the *Fœtus* growing large, requires Nouriſhment as well as the Mother, and muſt neceſſarily be deprived of it, if ſhe continues to caſt it up, beſides the commotion of the Body endangers an Abortion, or a Deſcent of the VVomb.

This Vomiting cannot be ſtopt of a ſudden, but muſt be abated and checked by degrees, by taking good Suſtenance, and eating but a little at a time, becauſe the Stomach being repell'd by the VVomb, the Meat regurgitates. To this

end let the Patient make her Meat palatable with *Juyce of Oranges*, *Limons*, *Pomgranats*, or a little *Verjuice* or *Vinegar*, as her Appetite ſerves. She may take often a Decoction made of *Flower of Barley*, firſt baked a little in an Oven, and then mixed with *Yelks of Eggs*, to make it more Nouriſhing and eaſie of Digeſtion. She may likewiſe eat after her Meals, a little *Marmelade of Quinces*, or *Jelly of Gooſberries*, and drink ſome old *Red Wine* mixt with *Spring Water*, or in want of that clear *River Water with Iron quencht in it*. Let her refrain from all fat Meats, which are apt to relax the Stomach and excite Vomiting, and ſo do all things which are ſweet and prepared with Sugar. Let her give a grateful ſharpneſs to whatever ſhe eats, for all ſharp things are Aſtringent, and preſerve the Tone of the Stomach. A Spoonful of *Aqua-vitæ*, or a Glaſs of Sack now and then, is very proper to take of *Nauſea's* and Vomiting.

If Vomitings continue after a Woman is gone half her time, have Recourſe to mild purges, as *Sena*, ℥i. *Rhubarb*, ʒß.. and *Syrup of Succory*, ℥i. This is a good Medicine to attenuate and carry off the tenacious Humours lodged in the Stomach and Guts, or purge her with *Manna*, *Caſſia*, *Tamarinds*, and ſuch like Lenitives, never omitting a little *Rhubarb* and *Compound Syrup of Succory*. But a VVoman under theſe Circumſtances, muſt never uſe violent Medicines, as *Antimony*, *Hellebore*, or *Scammony*, for fear of an Abortion.

If notwithſtanding the Woman continues to Vomit, it is beſt to leave the cure to Nature for fear of an Abortion, which will infallibly follow when ſhe is ſeized with the Hiccough.

Note here it is convenient to Bleed in theſe caſes before purging, interpoſing ſome ſmall interval of time between theſe Evacuations, for fear of putting the Blood into too great a Commotion.

The cold Air is a great enemy to VVomen apt to Vomit, and therefore they ought to go warm clad, and wear a Lambs Skin on their Breaſt and Stomach.

Of Pains in the Back, Reins and Hipps of Big-bellied Women.

The Pains of theſe parts proceed from the diſtention of the Ligaments of the VVomb, which are inſerted in theſe places. The beſt Remedy to appeaſe theſe Pains is Reſt, and a Big-bellied VVoman who in ſtraining has diſtended

theſe

theſe Ligaments, ought to loſe a little Blood in the Arm, and keep her Bed for ſome time. If the Pains ariſe from a bearing down of the VVomb on the lower parts, the VVoman muſt keep her Bed, or at leaſt her Belly muſt be ſuſpended with a large Swathe till the time of her Delivery.

If there be any extraordinary excretions from the VVomb mixt with Blood during theſe Pains, there is great danger of Abortion, and it ſhews the VVomb begins to open. But to avoid being deceived in paſſing a Judgment in this caſe, conſider well if there be a great Repletion of Blood, or the VVoman be ſubject to the Gravel, both which are capable of producing this Accident; and if either of theſe appear to be the cauſe, let proper Remedies be uſed, but with great Moderation.

Of Pains in the Breaſt.

VVhen a VVoman becomes Pregnant, her uſual Monthly evacuations ceaſing, and ſhe breeding ſtill new Blood it flows to the Breaſts, and diſtending the Veſſels there creates great Pain. A Woman at this time muſt be exceeding careful not to hurt theſe parts which are extremely ſenſible. She muſt not go with her Bodies ſtrait laced, for fear of a Contuſion, which may end in an Inflammation and Abſceſs. If the Pains of her Breaſts continue after the third Month, let her Bleed in the Arm, forbearing all Repellent and Reſtringent Medicines, let her uſe a cooling Diet, moderately Nouriſhing, and keep her Body open.

Of Difficulty of Urine.

When the *Fœtus* compreſſes the upper part of the Bladder, it neceſſitates a Woman to make Water every Moment; but if it compreſſes the Neck, as in the firſt Months after Conception, it intercepts its Paſſage. Sometimes the ſharp Salts of the Urine pricking the Bladder, ſtimulate a Woman to make water frequently, and inflame the Bladder, from whence a Suppreſſion of Urine enſues.

If a Woman with Child have a Stone in the Bladder, it is exceeding troubleſome, and the Womb preſſing the Bladder on it, creates inſupportable Pain, if the Stone be rugged and unequal.

There is a neceſſity to help this Accident as ſoon as is poſſible, becauſe the Woman's ſtraining to make water, forces down

down the *Fœtus*, and haſtens the Birth. If it proceeds from a Compreſſion of the Bladder by the bigneſs and weight of the Womb, the Woman may in ſome meaſure help this by keeping up her Belly with both Hands when ſhe makes water; or ſuſpending it with a Swathe, or which is beſt of all keep her Bed. If it proceeds from the Acrimony of the Urine, which inflames the Neck of the Bladder, it muſt be abated by a cool *Regimen*, and drinking a Ptiſan, refraining from Wine. She may uſe Emulſions Morning and Night made with the *Cold Seeds* in *Barley Water*, with a Spoonful or two of *Syrup of Violets*, or Nymphæa. If this do not abate the Inflammation, let her Bleed in the Arm, and foment all the External part of the Neck of the Bladder with warm Milk, or a Decoction of the emollient cooling Herbs, as *Mallows*, *Marſh-mallows*, *Pellitory*, *Violet Leaves*, with a little *Linſeed*; or inject the ſame into the Neck of the Bladder, adding to it a little *Oyl of Violets* or *warm Milk*; the Woman in the mean time muſt refrain from Copulation.

If theſe Remedies prove ineffectual, hold up her Belly and introducing a *Catheter* (being firſt well Oyled) thro' the *Urethra* into the Bladder, by this means evacuate it, and if the Suppreſſion return, uſe the *Catheter* again, as long as occaſion ſhall require. If this inconvenience continue, let her uſe the Half-Bath, having an eſpecial care that ſhe be not moved by it; all hot Diureticks endanger an Abortion, and therefore ſhe muſt ſhun the uſe of them.

If the Difficulty of Urine proceed from a Stone of the Bladder, thruſt it back with the *Catheter* if it be large, but if it be ſmall, try to fetch it away with an Extracter, putting the forefinger into the *Vagina* to keep it ſteddy, and hindring it from recoyling into the Bladder.

Of a Cough and Difficulty of Breathing.

Women whoſe Children lie high are ſubject to a Cough, becauſe the Womb bears up the Diaphragm. A violent Cough is one of the moſt dangerous Accidents which can befall a Woman with Child, and muſt be carefully prevented by a regular and cooling Diet, avoiding all ſharp and high Seaſoned Meats. If it ariſe from the ſharpneſs of the *Lympha*, ſhe muſt refrain from all four things, as *Oranges*, *Lemmons*, *Pomgranats*, *Vinegar*, *Verjuice*, which are to irritate the Part, and excite a Cough. On the contrary, let

let her uſe all ſuch things as temper and ſweeten the Blood, as *Milk-meats*, *Decoction of Liquorice*, *Sugar-candy*, *Syrup of Violets* and *Mulberry's*, ſome Spoonfuls of which ſhe may mix with her Ptiſan (made of *Jujules*, *Sebeſten*, *Raiſins of the Sun*, *French Barley*, with a little *Liquorice*,) adding to all theſe a few Clyſters. In the laſt place, if all theſe means prove ineffectual, and there appear manifeſt ſigns of Repletion, let her Bleed at whatſoever time of her going with Child it be, for moderate Bleeding can never be ſo dangerous as a continual Cough.

If her Cough proceed from taking cold, let her keep her ſelf warm in her Chamber, and take ſome Spoonfuls of *Syrup of burnt Wine*. To make this, ℞. the *beſt Wine* half a Pint, *Cinnamon groſly powder'd*, ℥ii. *Cloves*, *n.* vi. *Sugar double Refined*, ℥iv. Put theſe together in a Silver Porringer, and boil them upon a Chafing-diſh to the conſiſtence of a Syrup, of which let the Woman take at Night an hour or two after a light Supper, or let her take a little good *Roſa Solis*. It is requiſite the Woman have her Body open, to which end ſhe muſt ſometimes take Clyſters, have all her Drink warmed, ſpeak little, and refrain from Copulation. If ſhe want Sleep, that muſt be procured by mild Somniferous Juleps, and not by ſtrong Narcoticks, which are dangerous in pregnant Women, and never to be uſed without preſſing neceſſity.

Some Women bear their Children ſo high, that they have not liberty to breath, in this caſe Bleeding is neceſſary to diſcharge the Lungs, and make room for their expanſion. If this difficulty of Breathing proceed from a Compreſſion of the Diaphragm, the Woman muſt go looſe in her Dreſs; muſt eat but a little at a time and often; muſt refrain from all viſcous or windy Meats, as *Peaſe*, only feeding on things eaſie of Digeſtion, and Laxative; muſt ſhun all Melancholy apprehenſions, and ſadneſs of Mind; for theſe Paſſions are apt to divert the Blood, and determin it to the Heart in ſo great a quantity, as may endanger a Suffocation.

Of Varicoſe Swellings, and Pains in the Thighs and Legs.

In the laſt Months of a Womans going with Child, the Womb being very much diſtended, compreſſes by its weight the Iliac Veins; by which the Refluent Blood is hindred in its Aſcent, and the *Saphena* and Crural Veins, together with all the Veſſels of the Legs and Thighs, are tumefied by

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its Regurgitation, and the Blood it ſelf ſtagnating, cauſes great Pains and Swellings. Theſe varicoſe Swellings only admit of a palliative cure during the time of Pregnancy, *viz.* by laying a compreſs of Rags, and binding it on the tumefied Veſſels. Let the Roller with which the Part is bound, be about two or three inches broad, and begin to apply it below, aſcending to the *Varices*, which being conſtringed by this Bandage, are incapable of farther Dilatation, and the Blood hinder'd from ſtaying too long, and corrupting in them, whilſt at the ſame time it finds a paſſage through the other Veſſels, and by conſequence the Circulation is not intercepted. Let the Woman during this keep her Bed as long as ſhe can, becauſe the Blood aſcends to the Head more eaſily, whilſt ſhe is in this Poſture, than when ſtanding. If the *Varices* ariſe from Repletion, let her Bleed in the Arm. Bleeding in the *Varices* themſelves is condemned by Practitioners; as being an equivalent to Bleeding in the Foot, a thing never to be Practiſed in Women with Child.

Some Women have only Oedematous Swellings (proceeding from abundance of ill juices) which retain the impreſſion of the Finger. Theſe are to be cured by promoting Tranſpiration, by applying compreſſes dipt in Aromatick Tinctures, and repeated twice or thrice a Day; for inſtance, ℞. *Roſemary*, *Bays*, *Time*, *Marjoram*, *Sage* and *Lavender*, ā. one Handful, *Provence Roſes* half a Handful, Balauſtians *Alum*, ā. ℥i. Boil all in three Pints of *Red Wine*, to the conſumption of one third, and then ſtrain it through a Linen Cloth, and keep it for uſe.

Of the Hæmorrhoids.

The *Hæmorrhoids* in Women with Child, ariſe from the ſtopping of their Courſes, which conſtrains the Superfluous Blood to ſeek that way for its diſcharge; oftentimes they proceed from great ſtraining in going to Stool, Big-bellied Women being for the moſt part bound.

If the Piles are ſmall and indolent, care muſt be taken (whether they be within or without the Body) to prevent their encreaſe by the uſe of Medicines, proper to hinder and prevent a Fluxion on the Parts, but if they are large and painful, the Pain muſt be appeaſed; for ſo long as that continues, the Fluxion neceſſarily increaſes. And therefore if there be an apparent Repletion, let the Woman Bleed to abate

abate and divert the plenitude, let her Diet be Regular, moiſt and cooling, let her abſtain from all high ſeaſoned Meats; and refrain from the embraces of her Husband. If the Piles proceed from her being bound, and the Excrements are hardned in the *Rectum*, which frequently happens in Perſons who have been a long time without going to Stool, give her a Clyſter of Warm Water, or a Decoction of *Mallows*, *Marſh-Mallows*, *Pellitory*, *Violet Leaves*, *Linſeed* with *Honey* and *Nenuphar*, mixing with it a little *Oyl of ſweet Almonds*, and *Freſh Butter*, without any ſharp Ingredients which will not fail to exaſperate them, eſpecially when the Piles are inward. To paſs in the Pipe with leſs trouble in giving the Clyſter, put the leſſer end of a Pullets Gut on it. Let her keep to a cooling Diet, and Repoſe her ſelf on her Bed till the Fluxion ceaſe, and during this time foment the Piles with *Warm Milk* from the Cow, or Decoctions of *Marſh-mallows*, Tapſus Barbatus, and *Linſeed*. *Oyl of Eggs* alone, or *Oyls of ſweet Almonds*, *Poppies* and *Nenuphar* beat up with the Yelk of an Egg, for a long time together in a Leaden Mortar, are admirable to allay the Pain, and if the Inflammation be very great, a little of *Galen's Cerate*, mixed with an equal quantity of *Populeon*, may be put in. If the Piles do not go off, and the Swelling do's not abate after the uſe of theſe Remedies, open them with a Lancet if they are hard, or if they are ſoft apply Leeches, which will ſerve well enough, and create leſs Pain.

If the Piles diſcharge Blood in great quantity, the Life of the Mother and Child are both very much endangered; and therefore to prevent this Miſchief, foment well the part with a *Decoction of* Balauſtians, *Pomgranate Peels*, and *Provence Roſes* in *Smiths Water*, adding a little *Alum*; or apply a Cataplaſm made of *Bole Armoniack*, *Dragons Blood*, Terra Sigillata, and the *White of an Egg*. Bleeding in the Arm likewiſe is very proper, to turn the Courſe of the Blood.

Of a Looſneſs in Women with Child.

Women with Child are ſubject to divers ſorts of Looſneſſes, all which are apt to make them Miſcarry, if they be violent and laſt for any conſiderable time; but the worſt of this kind is a Dyſentery or Bloody Flux, becauſe this is accompanied with vehement and ſharp Pains in the Guts, which cauſe Throes and great Straining to go to Stool, which

which often brings the Birth before the due term is accomplished.

Timely care must be taken in these Fluxes of the Belly to prevent Abortion; and for this end their Nature must be considered; for instance, In a Lientery ensuing on continual Vomiting, which frequently happens, the Woman must abstain from all sorts of unusual Food; must eat nothing but what is Nourishing, and easie of Digestion, and that in small quantity too, that the Stomach may more easily concoct it; she must drink a little Red Wine diluted with Water, in which Iron is first extinguished, instead of her Ptisan which is not proper on this occasion, unless she have a high Fever (for except it be high, she need not refrain) and in this case she may take some good Cordial or Restorative before and after Meals, as a Spoonful or two of *Syrup of Burnt Wine*, a little *Hippocras* or *Alicant*. She may before Meals eat a little *Conserve of Roses*, or *Marmelade of Quinces*, and wear a Lambs-skin on her Stomach, to preserve and strengthen its Natural Heat, which is necessary for Digestion. She must not take any purgative Medicine, for these are apt to destroy the Tone of the Stomach, and disable it from performing its Office.

When the Flux is no more than a simple gentle *Diarrhœa* of no long standing, and the Woman is not much incommoded or endangered by it, it is sufficient to moderate it without stopping it all at once; but if this Evacuation continues above four or five Days, the Tenacious Humours lodged in the Guts, must be carryed off by some mild Purgative, as an *Infusion of Rhubarb* with *Syrup of Succory*, or an Ounce of *Double* Catholicon with *Rhubarb*.

But if the Looseness continue notwithstanding, and become a Dysentery, and she have constantly bloody Stools, great pains in her Bowels, and a *Tenesmus*, she is in very great danger of Miscarrying. The way to prevent this mischief, is to purge with the Medicines before mentioned, and prevent the breeding of ill Humours in the Bowels by a good Diet. To this end let her eat *Veal* or *Chicken Broth*, with the cooling Herbs boiled in it, with a *Quince* to allay the sharpness of the Humours; let her eat *Rice* boiled in her Broth, or let some New-laid Eggs be beaten in, because these smoothen the inside of the Guts.

A Woman in this condition may drink *Chalybeate Waters*, with a little *Wine* if she have no Fever, or if she have, she may take a spoonful of *Syrup of Quinces* or *Pomgranats* in a glass

glaſs of water, and eat a little *Marmelade of Quinces*, or *Conſerve of Roſes*, or ſome other Reſtringent and Corroborating things after being well purged. To abate the violent and ſharp Pains in the Belly and *Rectum*, which ariſe from a diſcharge of ſharp Humours on the Parts, and excite continual Throes endangering an Abortion, give a Clyſter made of the *Decoction of a Calves or Sheeps Head*, adding to it two Ounces of *Oyl of Violets*, or of New Milk, with the *Yelks of two New-laid Eggs* beat with it, and give the Patient a little *Laudanum* in the Yelk of an Egg, to cauſe her to reſt quietly. When ſhe has retained theſe Anodyne Clyſters as long as ſhe can, next give her deterſive ones made of the *Decoction of Barley*, *Mallows* and *Marſh-mallows*, with *Honey of Roſes*, and after theſe Aſtringent ones (without *Oyl or Honey*, which are laxative) beginning with the weakeſt, as *Lettuce* or *Plantain Water*, and after giving ſtronger made of a Decoction of the Leaves and Roots of *Plantain*, Tapſus Barbatus, *Horſetail*, *Provence Roſes*, and *Pomgranate Peel* boil'd in *Smith's Water*, adding Terra Sigillata, *Dragons Blood*, ā ℥ij. and with this foment the Fundament. Before the uſe of theſe Reſtringents, the Woman muſt be purged with the Medicines above mentioned, for fear of endangering the Life of both the Mother and Child, by a Retention of abundance of vitious Humours.

But ſince Dyſenterick Pains frequently proceed from a ſharp Humour lodged in the Stomach, and the effect of Clyſters do's not extend ſo high, it is convenient for the Patient to drink half a *Porringer of New Milk* twice or thrice a Day, and this Remedy has often relieved Pregnant Women in Dyſenteries. But the Cow which gives this Milk muſt not be Heated, have a groſs full Body, or have lately Calved, but ought to be ſound and fed upon a good Paſture well watered.

Of the Menſtrous Flux in Women with Child.

Sometimes Women have their Courſes for the firſt four, nay ſix Months. When a Woman voids Blood downwards, it muſt carefully be conſidered whence it proceeds, and in what manner, whether it be the ordinary Courſes, or a Real Flooding. If it be the Courſes, the Blood comes away at accuſtomed times, and flows by degrees from the Neck of the Womb, and not from its Bottom, as may be diſcovered, if trying with a Finger if the Internal Orifice be exactly

exactly cloſed, which could not be if the Blood come from the bottom of the Womb; to all which add, if it be the Courſes it will be ſmall in quantity. Sometimes this Evacuation of Blood is not Menſtrous, and yet muſt not be thought a Flooding, for if the Woman be full of Blood, and the abundance be greater than the *Fœtus* can conſume, this Evacuation is ſo far from being hurtful to the Mother or Child, that if the Womb was not diſcharged of that Superfluous Blood, the *Fœtus* would be ſuffocated by it. On this occaſion it is better to bleed moderately, than leave Nature to perform her Work.

If there be no viſible Repletion, and the Courſes continue after a Woman is with Child, it proceeds from an extreme fluidity of the Blood, which perſiſting during the whole time of her going with Child, makes her ſubject to miſcarry, or if ſhe eſcape, her Child will be weak, tender, and unhealthy. To prevent theſe Accidents, let her Repoſe her ſelf in her Bed, refrain from all Meats which may heat the Blood; ſhun Anger, uſing a cooling Diet, and feeding upon Meats which breed good Blood, and thicken it, ſuch as are good Broths made with Chickens, Necks of Mutton, or Knuckles of Veal, in which may be boiled cooling Pot-herbs, as *Purſlane, Lettuce, &c. New-laid Eggs* or *Gellies*, with *Rice* and *Barley* boiled in them are good. She may drink water in which Iron has been quenched, with a little *Syrup of Quinces*, ſhe muſt refrain from Copulation, becauſe by heating the Blood, it excites it to flow more. If all theſe Means are ineffectual, and the Flux continues, make a Revulſion by Bleeding in the Arm, if the VVomans ſtrength permit, and apply to the Mothers Belly Compreſſes dipt in *ſtrong Wine*, in which a *Pomgranate* with its Peel, *Provence Roſes*, and a little *Cinnamon* have been boiled, but the beſt way is to correct the Mothers Blood.

Of Floodings.

Floodings proceed from the bottom of the Womb with great Pain, and come of a ſudden, the Blood runs away in great quantity without intermiſſion, except when ſome clods ſeem ſometimes to leſſen the Flux, or ſtop it for a time, but ſoon after it returns with greater violence, and kills both Mother and Child, unleſs timely prevented.

When this Flooding happens to a Woman who is young with Child, the cauſe moſt commonly is ſome Mole or falſe Con-

Conception, which the Womb labours to expel, and in the effort breaks the Blood-Veſſels. In Women who are really with Child, it proceeds from a looſning of the *Placenta*, whoſe ſeparation opens the Mouths of the Veſſels. This moſt commonly is occaſion'd by ſome Blow, Slip or Hurt, though ſometimes it is cauſed by the Child twiſting himſelf in the Navel-ſtring, and ſo drawing the *Placenta* very ſtrongly. This Flooding never ceaſes till the Woman be delivered, and is more violent and dangerous in proportion to the largeneſs of the *Fatus*.

Every Evacuation of Blood do's not require the Woman to be Delivered immediately; for ſometimes the loſs is very ſmall, and may be ſtopt by keeping her quiet in her Bed, bleeding her and confining her to a good Diet, and the Blood perhaps is only her Courſes, or proceeds from ſome Veſſel which opens it ſelf on the outſide of the internal Orifice, and keeps the Womb from being exactly cloſed. In this caſe it is neceſſary to try whether the internal Orifice is open on the inſide, or whether the Child can be felt acroſs the Membranes, for if ſo, it is a Demonſtrative proof it is a Real Flooding, and the Woman will ſoon Miſcarry.

If the Blood come away in ſmall quantity, and the Evacuation do not laſt long, leave the Delivering the Woman to Nature, provided ſhe have a competent degree of ſtrength, and no dangerous Accidents happen. But if it come away in great abundance, or the Woman have Swoonings or Convulſions, it is abſolutely neceſſary to deliver her at whatever time it be, whether ſhe have the Pains of Labour or not, and there is no other way to preſerve the Life of the Mother and Child. To this end let the Artiſt place the Patient on her Back, and anointing his Hand with Freſh Butter or Oyl, by degrees inſinuate his Fingers cloſe together into the Womb, and ſpread them one from the other when they are in the Entry, and dilate it by degrees without violence. When he has his Hand in the Womb, if he finds the Waters are not broke, let him tear the Membranes, and ſlip his Hand in and fetch away the Child by the Feet, and after that bring away the After-burthen, which do's not adhere very firmly, taking care to leave no clods of Blood behind; for theſe will cauſe the Flooding to continue, which otherwiſe would ſoon ceaſe.

Since in all great Loſſes of Blood, great Weakneſs muſt neceſſarily follow, let the Patient be ſtrengthned with good Broths, Gellies, or a little Wine; for Liquid Aliments, have

a more prompt effect than Solids. Let her ſmell to ſome Spiritous Liquours, as *Aqua Vitæ*, *Queen of Hungaries Water*, or lay a *Toaſt ſteept in Wine*, in which *Cinnamon* has been infuſed, or Bleed her in the Arm if her ſtrength permit, and ſhe be not too much exhauſted; obſerving to cloſe the Orifice from time to time, for the more eaſie diverting the current of the Blood, without weakning her too much.

You may try to ſtop the Flux of Blood by Napkins dipt in *Oxycrate* made with *Plantain Water*, applied to the ſmall of the Back, or let the Patient lie on a Mat, and take two or three Ounces of *Juyce of Purſlane*; if all theſe Remedies are ineffectual, deliver the Woman forthwith, though ſhe be not above three Months gone, leaving nothing in the Womb, and this is the only means to ſave her Life.

Of the Weight or Bearing down of the Womb.

The Weight and Bearing down of the Womb, hinders a Bigg-bellied Woman in her walking, and cauſes a Stupor of the Hips and Thighs, Pains in the Groin, a Difficulty of making Water, and diſcharging the Excrements in the Guts, (becauſe it compreſſes the Bladder and *Rectum*, and draws down the Ligaments,) all which Accidents are capable of making a Woman Miſcarry. The beſt Remedy in this caſe, is to keep her lying a-bed, but if ſhe be not in a condition to do this, let her ſupport her Belly with a large Swathe, to eaſe the Ligaments, which are very much ſtrained, and when ſhe makes water, let her hold up her Belly with both Hands to keep it from preſſing on the *Sphincter*.

If the Neck of the Womb be too much relaxed by the Humidities, let her purge at convenient times, and uſe a dry Diet, feeding much on Roaſted Meats. Let her not go ſtrait laced, for fear of compreſſing the Womb which bears down too much already.

Of a Dropſie of the Womb.

The Womb is ſometimes ſwoln and diſtended with water, which is apt to impoſe on Midwives, who miſtake this Diſtemper for a Womans being with Child.

Sometimes theſe Waters are inclos'd in a Cover, and ſometimes they are in the cavity of the Womb. When they have no Cover, they are often miſtaken for a true Big-belly, and this

this errour remains till the uſual Term is compleated. The longer any Woman retains theſe waters, the more ſhe runs a riſque of her Life, and ſometimes they grow to ſo vaſt a bulk, that ſome have been found with 30 lb. in their Womb.

To diſtinguiſh between this Hydropical Swelling and a true Great Belly, conſider well the Signs of Pregnancy which are delivered above, that having nothing common with this, except a Diſtention of the Belly, and a Suppreſſion of the Courſes. In a Dropſie the Woman has her Breaſts flaggy, ſoft and fallen, has no Milk in them, do's not feel the Child ſtir, perceiving only a Fluctuation of the Water, has a great pain and weight in the Belly, which is more extended in its circumference, and do's not riſe to a Point, and the colour of her Face is worſe, than when with Child. Barren Women are more ſubject to this Indiſpoſition, than thoſe who have had Children; and theſe have the Inner Orifice of the Womb, ſtraiter and thinner than the other.

Dropſies of the Womb ſometimes happen in Women who are with Child, and in theſe caſes the Waters are without the Membranes which contain the Child. Sometimes too they are incloſed within the Membranes, and the Woman ſeems to be big with two or three Children, though ſhe really have but one, and that very weak too. Sometimes abundance of theſe Waters come away two or three Months before Labour, and in this caſe it is certain they are without the Membranes, for if the waters were broke, the Child of neceſſity muſt needs follow.

When this Dropſie happens to a Pregnant Woman, all the Relief ſhe can have is the patient expecting her time of Labour, and in the mean time uſing a drying Diet. But if there be nothing beſides Waters contained in the Womb, let her uſe a Half-bath, Diuretick Medicines, and all ſuch things as provoke the Courſes, to evacuate them. Farther, let her Bleed in the Foot, and purge with ſtrong Hydragogues. The *Bourbon* Waters are very good, eſpecially if ſhe Bath at the ſame time ſhe drinks them.

Of Oedematous Swellings in the Lips of the Privities.

Sometimes the Lips of the Privities are ſo much Swoln, that Women cannot bring their Thighs together, or walk without a great deal of Pain. The Lips are Tranſparent

as in a *Hydrocele*, which ariſes from the Waters which diſtend them. It is neceſſary to diſcuſs this Tumour before the time of a Womans Labour, becauſe it ſtraitens the Paſſage, and hinders her Delivery. To this end give her a Ptiſan made of Roots of *Dog-graſs* and *wild Succory*, in three Pints of which diſſolve a *Dram of Chryſtal Mineral*, or a little *Spirit of Salt* dulcified; or make ſome ſlight Scarifications on the Lips to diſcharge the Waters. Apply to theſe Scarifications a little *Ointment of Roſes*, and Compreſſes ſteeped in ſome Aromatick Wine to ſtrengthen the parts, confining the Woman to ſuch a Diet, as may hinder the breeding of more Waters. Scarification with a Lancet, is much better than the Application of Leeches, becauſe the Aperture made by theſe little Animals is ſo ſmall, that it cloſes immediately, and Scarifications may be kept open as long as you think fit, by laying on unctuous Medicines.

Theſe Oedematous Tumours are not very dangerous, when they are without Fever; but when they proceed from an Inflammation attended with a Fever, the VVomb is moſt commonly affected too, and it proves fatal to the Perſon.

Sometimes there are varicoſe Swellings on the Lips of the Womb, which cauſes a troubleſom itching. Women who labour under this inconvenience, are Sanguine for the moſt part, and have their Body bound. To remedy this, let them bleed in the Arm, keep their Body open, refrain from Copulation, and uſe a cooling Diet.

Of the Venereal Diſeaſe in Women with Child.

If a Woman with Child labour under the Venereal Diſtemper, and be in her laſt Months, ſhe muſt wait till her Delivery before ſhe attempt a Cure, for fear of dying if ſhe happen to be in a courſe of Phyſick at the time of her Labour. If the Diſtemper be not far gone, which is to be known by the Accidents, a Palliative cure muſt be attempted for the preſent, uſing a regular Diet, and gentle purging. But if a Woman be in the firſt Months of her going with Child, and the Pox be very high, and attended with ſuch Accidents as threaten her with Death, if her cure be deferred for too long a time, let a ſlight Salivation be raiſed by inunction of the upper parts only, as the Hands and Arms; but obſerve here, you muſt never in this caſe give any Mercurial Preparations by the Mouth, and uſe the utmoſt care leaſt

leaſt the Frictions throw the Patient into a Looſneſs, this by diſordering the Womb and exciting Throes, cauſe an Abortion. Bathing which is ſometimes uſed as a preparative to Mercurial Inunction, muſt be omitted in this caſe, but ſhe may uſe Ptiſans to humect and prepare her for a Salivation, by which (if it be prudently managed) ſhe may be very well cured, and notwithſtanding retain her Child till its due time.

Of Abortions.

If a Woman be delivered before her ſeventh Month, it is called an Abortion, but if at any time after the beginning of that, to the beginning of the tenth Month it is called a Birth, becauſe at that time the Child can live, and never before it.

All acute Diſtempers cauſe an Abortion, becauſe they kill the Child, and then it can remain no longer in the Womb. Intermitting Fevers ſometimes make a Woman Miſcarry, by cauſing a great pain in the Belly, and diſordering the Child, which commonly ſtruggles very much in the time of the Fit. There are ſeveral Accidents which endanger an Abortion, ſuch as are great Vomitings, which by the ſtraining of the parts, compreſs the Womb, and force it to disburthen it ſelf. Nephritick Pains, Colick and Griping of the Guts, Stranguries when the Woman labours much in making water, Great Looſneſs with a *Teneſmus*, abundance of the Courſes from the opening of the Womb, exceſſive Bleeding, Flooding from a looſning of the *Placenta*, Dropſie of the Womb; in ſhort, whatever makes a great Agitation or Concuſſion of the Womans Body, as hard Labour, Falls, Leaping, Dancing, Riding, Walking, Loud crying Exceſſive Laughing, Blows over the Belly, ſudden and ſurprizing Noiſe upon firing a Cannon or a clap of Thunder, eſpecially in the younger ſort, long Watching which impairs the Strength, long Abſtinence which weakens both Mother and Child, Stinks and ill Smells, as a Lamp of Oyl extinguiſhed or the fume of Charcoal, the Calloſity of the Womb, or its ſmallneſs which being compreſt by the *Omentum*, wants room to dilate it ſelf, for the Reception of the Child, Compreſſion of the Womb by ſtrait lacing the Body to appear well ſhaped or conceal a big Belly, frequent Copulation, eſpecially in the laſt Months, which opens the Womb. Flegmatick Women ſubject to the Whites are apt to Miſcarry, becauſe the Womb is moiſt and lax, and

the *Placenta* eaſily ſeparates. The great abundance of Blood which is carried to the *Fœtus* too plentifully ſometimes, ſuffocates it. Vehement Rage which puts the Spirits into a great Hurry and Diſorder, ſudden Fear or the Relation of bad News, often cauſe a Woman to Miſcarry on the Spot. When Children are Monſtrous, they never come at their due time. The ill Poſture of the Child in the Womb ſometimes puts him on ſtrugling, which looſens the *Placenta*, and opens the Womb. In the laſt place, Children are ſometimes ſo large, that the Womb is not capacious enough to contain them, or the Mother able to give them Nouriſhment.

If after any of theſe Accidents, a Woman have violent Pains in her Belly and Reins, clods of Blood come away from the Womb, and the Waters are broke, it is certain an Abortion is near. If the Woman feel a great Weight in her Belly, and the Child fall as a Ball on which ſide ſoever ſhe lie, and ſtinking Humours come from the Womb, ſhe will Miſcarry of a dead Child; eſpecially if the Breaſts, which before were hard and full, fall and decay. We have above directed how to prevent theſe kinds of Abortions, and therefore ſhall remit the Reader thither.

A Woman who is ſubject to Miſcarry ought to keep her Bed, uſe a good Diet, and refrain from Copulation, ſo ſoon as ſhe perceives her ſelf with Child, avoiding all Diureticks and Aperitives, and all Paſſions of Mind, go looſe in her Dreſs, wear low-heel'd Shooes, and take care not to ſtumble. When a Woman with Child happens to receive any hurt, let her keep her Bed, have Compreſſes ſteeped in ſome aſtringent Wine, applyed to her Belly, and let her be immediately bled in the Arm, without deferring it as uſually.

Obſerve here, that a Woman muſt never be Delivered, whilſt ſhe has a continual Fever on her, for in this caſe ſhe will die immediately after her Delivery. It is a miſtake to think her Cleanſings will remove that, on the contrary it encreaſes them, and the Cleanſings are entirely ſuppreſt. And therefore all endeavours muſt be uſed to abate the Fever before the Womans Delivery.

How to order a Woman when her Reckoning is up.

When a Womans term is up, ſhe muſt abſtain from all violent exerciſes, leaſt they cauſe a Flooding, occaſion the Child to take a wrong Poſture, or haſten the Birth ſome days before

before its time, all which is very prejudicial to the Woman: On the contrary let her walk moderately, repoſe her ſelf more near the end of her time, than in the beginning of her pregnancy, and let go looſe in her Dreſs. Let her obſerve a Regular Diet, uſing Meats which yield good Juyces, and are eaſie of Digeſtion, rather roaſted than boiled, to humect more, and keep her Body open, that ſo ſhe may not be obliged to take Clyſters, which are apt to haſten the Birth. For the eight or ten laſt days, let her anoint the bearing parts with *Oyl of ſweet Almonds*, and Greaſes to relax and ſoften them, and open the Paſſage, eſpecially if it be the firſt Child, becauſe the parts are ſtraiter. Women who are in years, and never had Children, muſt have a great care to relax the parts well with Greaſes, becauſe they are dry, and do not yield ſo eaſily, beſides the Articulation of the *Coccyx* or Rump-bone is very firm, and do's not eaſily give way in Labour.

Women when they are near their time, may not bleed by way of prevention, unleſs they are ſubject to Flooding, nor in the ſeventh Month; becauſe this creates a Diſorder in the Body, and puts them in danger of Miſcarrying.

Women near their time, ought to be provided with ſome able Midwife or Artiſt, whom they muſt ſend to as ſoon as they find any great Pains in their Belly, for ſome times the leaſt Colick Pain or Gripe flings them into Labour.

How a Woman is to be ordered after her Delivery.

When a Woman is compleatly Delivered, and the Burthen brought away, a Cloſure of fine Linen Rags five or ſix times doubled, muſt be applied to her Privities, to prevent the cold Air from entring her Body, which would ſhut the Veſſels, and ſtop the Cleanſings, and cauſe vehement Pain and Griping of the Guts, with an Inflammation of the Womb, a Fever, Pleuriſie, and frequently Death it ſelf.

After the entry of the Womb is clos'd, let the Woman who is newly Delivered, be carryed to a Bed provided for the purpoſe, and covered with Cloths to receive the Cleanſings. But if ſhe be Delivered in her own Bed, which is beſt, to avoid the trouble of carrying her to another; let the Cloths and other things be removed, which were laid to receive the Waters and Filth in Labour, and let her be placed in a convenient Situation, that ſo ſhe may take her

reſt, and recover the Strength ſhe has loſt in Labour. Let her Body be raiſed for her more eaſie breathing, and the flowing of her Cleanſings, which if they are retained cauſe great Pains. Let her put down her Thighs and Leggs cloſe to each other, and have a Pillow under her Hams to ſupport them; Laſtly, let her lie on the middle of her Back without turning either to one ſide or another, that ſo the Womb may reſume its natural Situation.

As ſoon as the Woman is Delivered, give her an Ounce of *Oyl of ſweet Almonds drawn without Fire*, with an equal quantity of *Syrup of Maiden Hair* to cool her Throat, which is heated with her cries in Labour, and take off her Gripes. However if the Woman nauſeate this Remedy, forbear it, and give her ſome good Broth as ſoon as ſhe is a little recovered from the Fatigue of her Labour, and leave her to Sleep, ſuffering no noiſe to be made in the Chamber, drawing the Curtains, ſhutting the Windows and Doors, not imitating the Practice of ſome who forbid a Woman to ſleep after her Labour; good Repoſe being the moſt proper means to recover her Strength, and abate all Accidents which happen.

Of Applications to the Belly and Breaſts of a Woman newly Delivered.

As ſoon as the Womans Bed is fitted, apply to her Privities an Anodyne Cataplaſm made of two Ounces of *Oyl of ſweet Almonds*, and two *New-laid Eggs*, both Whites and Yolks ſtirred together over warm Embers, to the conſiſtence of a Cataplaſm, and ſpread on a Rag, and laid on moderately warm. This Cataplaſm is very good to abate the Inflammation of the Parts after hard Labour; when it has lain on three or four Hours, renew it if the Inflammation ſhall require it; Laſtly, make a Decoction of *Barley*, *Linſeed*, *Chervil*, *Agrimony*, *Marſh-mallows* and *Violet Leaves*, and waſh the Lips of the part two or three times a Day, to clear it from Blood and other Filth proceeding from the Cleanſings, and to appeaſe the Pain, foment it with *Warm Milk*, *Barley* and *Chervil Waters*.

Aſtringents are not proper till fifteen days after delivery, when the Purgations are come away, and then ſuch as ſtrengthen the parts may be uſed; as a *Decoction of the Roots and Leaves of Plantane* and *Provence Roſes*, in *Smith's Water*. After the Cleanſings are entirely over, which is about the ſpace

of

of three Weeks, to corroborate and close the parts, Water of Myrrh or an Astringent Lotion may be injected, *v. g.* ℞. *Pomgranate Peels*, 4. *p. Cypress Nuts*, ℥ß. *Acorns*, ℥i. Terra Sigillata, ℥ß. *Provence Roses*, ℥i. *Roch Alum*, ℥ij. Infuse all for the space of a Night in half a Pint of *strong Red Wine* alone, or diluted with *Smith's Water* if it be thought too sharp; or boil till it be reduced to a Pint; strain it through a Linen Cloth and express it, and with this foment the Part well Morning and Night.

As soon as a Woman is delivered, let the Skins of some Animal be laid on her Belly to keep it warm. If her Labour has been very hard, let her be very gently Swathed, because her Belly is very sore; nor must these be straitned till her Cleansings are all over. Some Midwives and Nurse-keepers lay a Compress doubled on the Belly, and another large square one over that, and keep these on with a Napkin in three or four Folds, of a quarter of an Ell broad, and so straiten and compress the Belly, but these do only bruise and hurt it. It is better to lay a great square Compress on the Belly for the first fifteen days, to keep it in its right position, undoing this Bandage several times a Day to anoint the Belly (if it be sore, and she be griped) with *Oyl of sweet Almonds*, which is better than all the *Pomatums* in the World. When that time is over, you may straiten the Belly and bring the parts together, in which you have nothing to fear, because the Cleansings being finished, the Womb is diminished in its bulk, and there is no great danger of hurting it, provided it be moderately strait, for if it be too strait the Womb is thrust down, and the Woman suffers great inconvenience by that means, and the Flux causes her Belly to remain big for a long time after.

If the Woman intends to suckle her Child, let her Breasts be covered with fine soft Cloths, to prevent the Milk from curdling in them. If the Milk flow in great abundance to the Breast, embrocate them with a mixture of *Oyl and Vinegar*, and apply Rags dipt in it to them.

What Diet a Woman ought to observe during the time of her lying in.

A Woman newly delivered, must observe the same Diet as Persons in a Fever to prevent it. She must be very regular and abstemious the three or four first days, taking only some Veal or Chicken-broth, New-laid Eggs, or some good Gelly, refraining from all solid Meats. When

When the abundance of Milk is over, ſhe may be permitted to eat a little Broth at Dinner, or a little boil'd or roaſted Chicken, by degrees encreaſing the quantity of her Meat, which always muſt be eaſie of Digeſtion; Let her ordinary Drink be a Ptiſan made with *Dogs-Graſs*, *Barley* and *Liquorice*, or *boyl'd Water*, which ſhe muſt not drink cold; ſhe may drink a little White-wine diluted with Water, after the firſt five or ſix Days.

Women us'd to hard Labour, require more plentiful Nouriſhment than others, and it is ſufficient for theſe to leſſen the quantity of their ordinary Food.

Let the Woman keep her Bed and reſt her ſelf well, not diſturbing her Mind with the concerns of her Family, and avoid all Talking, let her Body be kept open with Clyſters, giving her at leaſt one Ounce in two Days, and let her be careful to order her ſelf in this manner, till her Cleanſings are over. In the laſt place to finiſh all, and purge off the remaining impurities, let her take *Caſſia* with the *purgative Syrups*, and bath and cleanſe her Body to receive the Embraces of her Husband.

How to dry up the Milk.

If a Woman do's not intend to ſuckle her Child, apply to her Breaſts a Mixture of *Oyl and Vinegar*, or *Oyntment of* Populeum and *Galen's Cerate* all ſpread on Rags or Brown Paper, or a Rag dipt in *Warm Verjuyce*, with a little *Alum* diſſolved in it to make it more aſtringent, or the *Lees of Wine*, either by it ſelf or mixed with *Oyl*. All theſe are repellents, and hinder the Humours which breed Milk from flowing too plentifully to the Breaſt.

To diſcuſs and diſſipate the Milk which is already gathered in the Breaſts, apply a Cataplaſm made of the four Meals (viz. *Barley*, *Fenugreek*, *Linſeed* and *Fitches*) *Honey* and *Saffron* boiled with a Decoction of *Chervil* and *Sage*, or make a Cataplaſm of *Honey* alone, or rub the Breaſts with it, and lay on them Leaves of *red Cabbage*, having firſt cut off the great Ribs, and deadned them before the Fire. Or make a Decoction of *Box-leaves* and *Sage* in Urine, and foment the Breaſts with this, and let Rags dipt in it be applied to them. In the Application of theſe Remedies, great care muſt be taken that the Woman do not take Cold, as likewiſe of inflaming the Breaſt for fear of an Apoſtem; wherefore Remedies muſt be changed as Symptoms alter.

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One good way to prevent the breeding of Milk in the Breaſt, is Purging, and keeping the Body ſoluble with Clyſters. Much ſtirring of the Arms is apt to create a Pain in the Breaſt, and therefore the Woman muſt uſe them as little as poſſible.

About three Weeks after a Womans delivery, when the Milk is entirely gone off, Aſtringent Medicines may be uſed to ſtrengthen the Breaſts. To this end apply to the Breaſts Cloths dipt in Myrrh Water, or anoint them with *Oyl of Wallnuts*, being careful not to cauſe hard and painful Swellings by the uſe of Aſtringent Medicines.

Of Flooding in Women newly Delivered.

When the Burthen is great the Veſſels moſt commonly are very large, and if it be brought away with violence, a great Flooding follows. This Flux of Blood happens likewiſe, when any Part of the Burthen remains behind in the Womb, or there is any falſe Conception in it; for Nature ſtriving with its utmoſt efforts to expel any extraneous Body, breaks the Veſſels, and pours a Torrent of blood out of them. Sometimes Seroſities only flow from the Womb, and the Standers by are inclined to believe the Flooding is ſtopt, when indeed the Mouths of the Veſſels are only blockt up by clods of blood; after the removing which the Flooding returns, and is often more vehement than before.

Flooding is the moſt dangerous of all the Accidents which befall Child-bearing VVomen, and the Blood ſometimes comes away in ſuch large quantities, that there is no time to remedy it, and the Woman dies upon the Spot. If it proceed from ſome portion of the Burthen retain'd in the Womb or Clods of blood, or ſome falſe Conception, all endeavours muſt be uſed inſtantly to bring away thoſe extraneous Bodies, but if after they are removed, the Blood do's notwithſtanding continue to flow, bleed the Woman in the Arm if ſhe have ſtrength to ſupport it, and whilſt ſhe bleeds ſtop the Orifice from time to time, and let her lie along (that is with her Head not too high) and keep her ſelf ſtill, that by this means the Blood may flow in leſs proportion to the lower parts, and a ſufficient diverſion be made without too much weakning the Patient. Her Belly muſt not be ſtraitned with any Swathe or Compreſs, for all Bandages are hurtful, if the Belly be ſore. Inſtead of this, let the Air of her Chamber be kept cool, and cover her lightly for fear of heating the Blood, and putting it into a Ferment, (and

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ſo encreaſing the Flux) and give her ſome ſtrong Clyſter.

If in ſpite of all theſe Remedies the Flooding do's not ceaſe, lay her upon freſh Straw with a ſingle Cloth on it, and apply to her Loins Napkins dipt in cold *Oxycrate*, or if it be Winter a little warm'd. Let her take a little Juyce of *Purſlain* alone, or mixt with her Broths, or make Injections of *Plantane-Water*. Some pretend that a Girdle of *Knot-graſs* put about the Waſt, ſtops all Fluxes of Blood:

Every half Hour to recruit her Strength, ſhe may take a little ſtrong Broth, or ſome ſpoonfuls of Gelly, or Yelks of New-laid Eggs at convenient diſtances of time, not eating too much at a time, for fear of overcharging her Stomach. Let her Drink be *Red Wine* diluted with a little Water, in which Iron has been extinguiſhed, and let Cloths dipt in Aromatick Tinctures, or in defect of theſe in burnt Wine, be applied to the Region of the Heart.

When the Flux of Blood begins to ſtop, and the Woman is a little recovered from her Weakneſs, let her uſe a Ptiſan made of *Burnet* and *Barley* for her ordinary Drink. If theſe Remedies have not their due effect, the Patients Life is in great Hazard, and if ſhe eſcape, you muſt expect in a few days a Violent Pain in the Head, with a continual Fever attended with cold and hot Fits, and this ſometimes is intermitting. Women who recover after violent Floodings, have their Leggs ordinarily Swoln for ſome Months after, becauſe the new Blood muſt of neceſſity be ſerous, and cannot recover its due Conſiſtence in a conſiderable time. The firſt Courſes which come after Flooding are very plentiful, and in greater quantity than uſual, which makes the Woman fear the Flooding is returned; but this proceeds only from the Largeneſs of the Blood-Veſſels, is not dangerous, and requires no other Remedy than Reſt, and refraining from Copulation.

Of the falling out of the Womb after Delivery.

When there is a falling out of the Womb, the Woman feels a great weight at the bottom of her Belly, great difficulty in making Water, a Pain in her Reins and Back, and a Reddiſh Water comes away from the Neck of the Womb, which is relaxed and hangs out.

To remedy this indiſpoſition, let the Neck of the Womb be forthwith reduced to its Natural place, and if the Woman be young, and the Diſeaſe be recent, ſhe may be cured,

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but if it be of long ſtanding, the Cure will be difficult to perform. If the Womb come quite forth upon a Womans delivery, and be not immediately reduced, her life is in very great danger. When this happens, the Artiſt muſt have a care not to miſtake that large portion of Fleſh which hangs between the Thighs for ſome extraneous Body, it being the Neck of the Womb it ſelf, which has loſt its Rugoſities by its Relaxation. If he draws this, there is great Danger of cauſing a Flooding, and killing the Patient.

For the curing of this Diſeaſe, it is neceſſary to reduce the Womb to its Natural place, and retain it there. To do this let the Woman make Water, having firſt to facilitate the Work given her Clyſters to evacuate the groſs Excrements in the *Rectum*, then let her lie on her back with her Hips raiſed higher than her Head, and foment with *Milk* or *Wine* luke-warm, that which hangs out between her Thighs, and take the Neck of the Womb with a ſoft Rag, and reduce it to its Natural place, thruſting it with the Hand ſometimes on one ſide, ſometimes on the other. If the Neck of the Womb be ſo large that it cannot enter, anoint it with *Oyl of ſweet Almond*, to put it up the more eaſily; and when it is reduced, wipe of the Oyl for fear it relax the part, and occaſion its falling out again. If the Womb cannot be reduced, there is great danger of its gangrening, and killing the Woman.

When the Womb is replaced, let the Woman be laid on her back, with her Hips a little raiſed, and her Legs croſſed, and her Thighs cloſe to each other, for fear of its falling out again, and put a Peſſary into the Neck of the Womb to keep it there. Theſe Peſſaries are made of a thick piece of Cork covered with white wax to preſerve them from rotting, and keep them from hurting the Neck of the Womb, and may be drawn out from time to time to cleanſe them; The Reader will find the Figure of them in the Plates annexed at the end.

Whilſt the Cleanſings continue, there is no other way to ſtrengthen the Womb, and keep it in its proper place, but by Peſſaries, for Aſtringent Medicines ſuppreſs thoſe purgations, and are of dangerous conſequence, and compreſſing the Belly by Swathing it, forces the Womb ſtill down. Let the Patient have the Pan given her in Bed, and in voiding her Excrements, let her lay her Hand before to keep the Womb from falling out. When the Cleanſings are over,

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Aſtringent Injections may be uſed, and the Peſſary covered with Medicines of the like Nature, and the Woman be purged if occaſion require. If ſhe be newly delivered, ſhe muſt not riſe from her Bed in ſix or ſeven Weeks, during which time ſhe muſt refrain from the Embraces of her Husband.

Of the falling out of the Fundament.

When the vehement ſtraining of a Woman in her Labour, has occaſioned the falling out of the Fundament, if the Child be advanced in the Paſſage, adviſe her not to help her Throes ſo much, and defer the Reduction till after the Birth, becauſe it cannot be done before without bruiſing the Gut. But ſo ſoon as ſhe is delivered, reduce it in the ſame manner, and obſerving the ſame Cautions as in the falling out of the Womb. But omit on this occaſion giving of Clyſters, becauſe they are apt to excite a ſtraining to go to ſtool, and endanger a Relapſe.

Of the Hemorrhoids.

Women are commonly troubled with the Piles during their lying in. To prevent this inconvenience, let them ſit with their Fundament in a Baſon full of *Warm Water*, for a quarter of an Hour at a time, or foment the Piles with *Warm Milk*, for the firſt Days, or *Oyl of Eggs* beat in a Leaden Mortar, either alone or mixed with *Oyl of* Populeon, being careful to put in no Ingredients which may irritate them. By procuring a good Evacuation of the *Lochia* from the Womb, this Pain abates of conſequence.

Leeches applied to the Piles in any of the firſt days, are apt to divert the due Evacuation of the Cleanſings, and bring a Fluxion on the Piles, and for this reaſon if uſed, muſt be deferred till eight Days or more after Delivery.

Of Contuſions and Rents in the External parts of the Privities.

The great Dilatation of the Privities which is made by the Child in making its way out, cannot fail of ſometimes making Contuſions and Lacerations, and if theſe Accidents are neglected, they degenerate into malignant Ulcers, by reaſon

reaſon of the continual Heat and Filth of that Part. If there be only ſimple Contuſions or Excoriations, there is nothing farther neceſſary than the applying a Cataplaſm made of the *Yelks* and *Whites of New-laid Eggs*, with *Oyl of ſweet Almonds* ſeethed over warm Embers, and ſtirred till they unite. Let this Cataplaſm be ſpread on fine Stupes or Rags, and applied warm, leaving it on for the ſpace of five or ſix Hours. Next lay Rags dipt in *Oyl of* St. *Johns wort* on the Excoriated Lips, renewing them twice or thrice a day, bathing the parts each time with *Barley Water*, and *Honey of Roſes*, *&c.* to cleanſe them from the Excrements which come from the Womb. When the Patient makes Water, cover the Lips of the Privities with fine Rags, to prevent them from being excoriated by the ſharpneſs of the Urine. If theſe excoriations are painful, the beſt Remedy is *Oyl of Walnuts* drawn without Fire.

Sometimes Midwives do ſo much violence to the Bearing part, that it is very much inflamed, and a great Abſceſs formed in it; when this happens, it is neceſſary to give vent to the Matter, and after that is diſcharged, to inject ſome vulnerary Decoction made of *Barley Water* and *Honey* into the Cavity, with a little *Honey of Roſes*, and *Spirit of Wine*, and ſo treat it in the ſame manner, as all ordinary Ulcers.

Sometimes the *Perineum* happens to be rent quite down to the Fundament in the Birth, ſo that the *Anus* and Privities make but one common Hole. If this were left in this State, the Woman would be delivered with more eaſe of her next Child; but notwithſtanding it is better to reunite the parts as ſoon as may be, becauſe the Excrements coming that way diſguſt the Husband, and the Woman is by no means fit to receive his Careſſes.

Wherefore having cleanſed the Part with *Red Wine* lukewarm, let the Rent be ſtitched with three or four ſeparate Stitches, according to the length of the Laceration, and take at each Stitch good hold of the Fleſh, and then dreſs it with ſome Agglutinating Balſam, as Arcæus *Liniment*, covering the Wound with Pledgits or Linen Cloths, to prevent the Excrements from falling on it, which would cauſe a great deal of Pain, and hinder its Coalition, and let the Woman keep her Thighs cloſe till the Cure be perfected.

If ſhe afterwards happen to be with Child, let her take care not to anoint thoſe parts with Greaſes and Emollient Oyls, for ſome time before her Labour, that ſo the Parts giving

ing way in the Birth, may not be torn. A Woman who has once had an Accident of this kind, ought to employ a skillful and dextrous Artiſt, becauſe in all Labours after there is very great danger of Laceration, the paſſage being very much ſtraitned by the *Cicatrix*.

If the Re-union of the Wound be neglected at firſt, the Calloſity on the edges muſt be cut off with a pair of Sciſſars, and it muſt then be Stitched, as is above directed.

If the Child ſtop too long in the paſſage, there is a Retention of Urine which creates an Inflammation and Ulcer in the Bladder, which in time becomes a *Fiſtula*, and emits the Urine involuntarily. This *Fiſtula* when there is a loſs of Subſtance, and great part of the Neck of the Bladder is conſumed by the Suppuration, is incurable, otherwiſe it may be healed by due Care and Diligence.

Of Pains hapning to Women after Delivery.

After a Woman is delivered, ſhe ordinarily is troubled with ſharp Pains in the Reins, Back, Groins, and ſometimes in the Womb, and all over the Belly. Theſe Pains are ſometimes Continual, and ſometimes Intermitting, and proceed from wind in the Guts, or ſome extraneous Body remaining in the Womb after Delivery, which Nature ſtrives to expel with her utmoſt efforts. Some falſe Conception, ſome portion of Burthen, or ſome Clods of Blood in the Womb, may be the cauſe of theſe After-pains, which ceaſe not till they are ejected, and are not like the Wind-Choſick alleviated by giving of Clyſters, but rather exaſperated.

Sometimes theſe Pains proceed from a ſudden Suppreſſion of the Cleanſings, and then the Womb is diſtended and inflamed, the Belly is hard and Swoln, and the Woman is quickly killed by it.

Sometimes theſe Pains ariſe from an Exceſſive Diſtention of the Ligaments of the Womb, and then they are fixed in the Back, Reins and Groins, the places where theſe Ligaments are inſerted, and ſometimes they reach to the Womb it ſelf eſpecially when it has ſuffered much contuſion in Labour.

To prevent theſe Pains ariſing from Wind, let the Woman take a mixture of *Oyl of ſweet Almonds*, with *Syrup of Maiden Hair*. *Oyl of Wallnuts* is better if the Taſt be not too Nauſeous Theſe Medicines by their Unctuoſity, make way for the Contents of the Guts to ſlip more eaſily through them.

them. If the Woman have an averſion to any thing of this Nature, give her ſome very hot Broth, or half a Glaſs of *Hippocras*, provided there be no danger of a Fever. She muſt keep her Belly warm, muſt not drink her Ptiſan cold, and muſt lay warm Cloths on her Belly, if her pains be very troubleſome to her, anointing it with *Oyl of ſweet Almonds*, or applying a *Pancake of Eggs* fryed with *Oyl of Wallnuts*, taking care not to Swath it too ſtrait. The next morning give her Clyſters made of a Decoction of the Emollient Herbs, with a little *Linſeed* boyled in it, adding *Honey of Roſes* and *Oyl of ſweet Almonds* of each three Ounces, or a little *freſh Butter*, repeating theſe Clyſters as oft as occaſion requires. Some Women as ſoon as they are delivered, drink the Broth of an old Partridge boyl'd with Leeks, others take a Draught of Milk boiled, to which they put five or ſix *Walnuts* pounded with a little *Sugar*, and ſo ſtrain all hot through a Linen Cloth, but theſe Remedies are inſignificant, if the pains ariſe from any extraneous Bodies retained in the Womb; for theſe muſt neceſſarily be expelled, and when that is effected, the Pains will ceaſe of their own accord, except the Blood happen to leave any Clods, and if ſo, theſe will not fail to produce as ſharp Pains as thoſe after Labour.

If the Cleanſings which were copious before, happen to be ſtopt on a ſudden, vehement and ſharp pains will follow, and care muſt be taken to procure an Evacuation of them by Clyſters, Hot and Aperitive Fomentations applied to the Privities, and Bleeding in the Foot.

As for the Pains in the Back and Groins, which proceed from the great extenſion of the Ligaments, they are to be removed by Reſt, and a Regular way of Living.

Of the Cleanſings, and the Signs when they are Good or Bad.

Thoſe Cleanſings are good which are Bloody the firſt days, and after loſe that colour, and by degrees become white. Their Conſiſtence ought to be uniform without any concretions or clods, farther they ought to be void of all Acrimony and ill Scent, and come away in a moderate quantity.

They muſt not continue bloody longer than the firſt days, otherwiſe inſtead of Cleanſings, there would be a dangerous Hæmorrhage. When they gradually loſe their Red Colour, and grow White, it is a ſign the Veſſels begin to cloſe,

and when their Conſiſtence is equal without any clods or concreted Matter, it is certain there is no mixture of any Heterogeneous Subſtance with them; when they have no ill Scent or Acrimony, it is evident there is no Inflammation or Corruption of the Womb; In the laſt place when they flow moderately, the Superfluities only are diſcharged, but when they flow in great Quantity, the Woman is exceedingly weakned, ſeized with Convulſions, Swooning Fits, is extremely emaciated, and continues pale for a long time, and her Thighs and Legs ſwell, and become Hydropick.

Of the Suppreſſion of the Cleanſings, and the Accidents which follow thereupon.

When the Cleanſings are ſuppreſt, the Humours corrupt by their long ſtay in the VVomb, or cauſe ſome Inflammation. If the Cleanſings happen to be ſuppreſt in the firſt Day, there enſues an acute Fever, a vehement Pain in the Head, Pains in the Breaſt, Reins and Back, a Suffocation and an Inflammation, which extends all over the lower Belly, and this becomes diſtended. Beſides this, the Woman finds a great difficulty of Breathing, ſtoppage at Stomach, palpitation of the Heart, *Syncopes*, Convulſions and *Delirium*, and theſe Symptoms frequently prove Mortal to her. If the Suppreſſion continues, there is great danger of an Abſceſs in the VVomb, or perhaps of a *Cancer* or Apoſthumes in the lower Belly, Sciatica's, Lameneſs, or Inflammations, and Abſceſſes of the Breaſts, according as the Humours take there courſes, and theſe Suppreſſions are more dangerous by much, than thoſe of the Courſes.

A Looſeneſs ſometimes is the cauſe of the Suppreſſion of the Cleanſings, and ſometimes it proceeds from a diſorder of the Spirits cauſed by violent Fear, Sadneſs, or Dejection of Mind, Anxiety, or any diſmal Apprehenſion. Great Cold conſtringes the Veſſels, and coagulates the Blood in the Womb, Cold Drink, and Reſtringent Meats have the ſame effect, and very much ſtirring, diffuſes the Humours through the whole Body, and hinders their diſcharge by the VVomb.

To bring the *Lochia* well down, let the VVoman avoid all perturbations of Mind; let her lie in her Bed with her Head and Breaſt a little raiſed, (keeping her ſelf very quiet, that ſo the Humours may be more eaſily carried downwards) let her obſerve a good Diet, ſomething hot and moiſt; let her rather uſe boil'd Meats than Roaſted, and if ſhe be any thing

thing Feveriſh, drink Broths only with a little Jelly, avoiding all binding things, and let her Priſan be made with Aperitives, ſuch as Roots of *Succory*, *Dogs-graſs* and *Aſparagus*, with a little *Aniſe-ſeed* and *Hops*, and every other time let her take a little Syrup of Maiden-Hair in a Glaſs of the Priſan, and carefully ſhun Cold Drink. Let Clyſters be given her, and her lower parts fomented with an Emollient and Aperitive Decoction made of *Mallows*, *Marſh-Mallows*, *Pellitory of the Wall*, *Camomil*, *Melilot*, Roots of *Aſparagus* and *Linſeed*, with which Decoction the Womb may likewiſe be injected, and with the remaining Herbs let a Cataplaſm be made, adding a little *Oyl of Lilies* or *Hogs-greaſe*, and apply this very hot to the Belly. Beſides this, let her Thighs and Legs be ſtrongly rubbed down, bathing them with the ſame Emollient Decoction very hot. But here bleeding muſt by no means be forgot, and if the VVoman be very Sanguine, firſt bleed her in the Arm, and after when the Symptoms are abated in the Foot.

Of the Inflammation of the Womb after Delivery.

Very often the ſtopping of the *Lochia*, do's cauſe an Inflammation of the VVomb, and is the Death of moſt VVomen to whom it happens. Sometimes this Inflammation ariſes from ſome Hurt or Bruiſe.

An Inflammation of the VVomb may be known, by being much more ſwelled after Labour than is requiſite, the VVoman feels a very great Heavineſs in the bottom of her Belly, and that is ſwelled and blown up almoſt as big as before Delivery, ſhe has a difficulty in making water, and going to ſtool, or ſhe perceives her pain encreaſe in voiding her Excrements (becauſe the VVomb preſſes the *Rectum*, and by its Proximity, communicates the Inflammation, as well as to the Bladder) to which add, that in this caſe there is a high Fever, and great difficulty of Breathing, and a Hiccough, Vomitings, Convulſions, and Death ſoon follows if not timely prevented.

Contuſions of the VVomb often cauſe Abſceſſes and Schirrous Swellings, which continue for a long time, and ſometimes end in incurable *Cancers*.

As ſoon as the VVomb appears to be inflamed, extract or procure the expulſion of all extraneous Bodies, which may happen to be lodged in it, without doing the leaſt violence to it for fear of exaſperating the Malady; correct the Hu-

mours by a cooling Diet, and let the Patient uſe Food that Nouriſhes little, drinking only Broth (but not too ſtrong) made of *Veal* and *Pullets*, with the cooling Herbs, ſuch as *Lettuce*, *Purſlane*, *Succory*, *Borage*, *Sorrel*, or the like; let her abſtain from Wine, and drink a Ptiſan made of the Roots of *Succory*, *Dogs-graſs*, *Barley* and *Liquoriſh*; let her keep her ſelf very quiet in her Bed, and not be Swathed too ſtrait; let her Body be kept open with ſimple Anodyne Clyſters, without the leaſt ſharpneſs, for fear of cauſing Throes, which extremely pain the inflamed part, and of all Paſſions of the Mind, let her eſpecially avoid Anger.

The Redundancy of the Humours may be evacuated, and diverted by bleeding; firſt in the Arm, and after in the Foot if there be occaſion. It is convenient to cover the Belly with *Galen's Emplaſter* to cool it, or embrocate it with *Oyl of ſweet Almonds* mixt with a little *Vinegar*. Injections may likewiſe be made into the Womb, but theſe muſt be cooling only, without the leaſt Aſtringency, (ſuch as are made of *Barley Water*, with *Oyl of Violets*, or *warm Milk* are very proper) obſerving to uſe nothing which is exceſſively cold, avoiding all ſorts of Diureticks, and keeping the middle way in the Cure, for fear of Inflaming the Womb by the uſe of hot things, which provoke the Flux. Bleeding is good for the making an Evacuation, without any of theſe conſequences. But obſerve here, all Purges how mild ſoever, are hurtful in this Caſe, as well as in all Inflammations and Fluxions on the Womb, even the leaſt that can happen.

Sometimes an Inflammation of the Womb is converted into an Apoſthume, which yields a great quantity of Matter, in this caſe you muſt be contented with a good Regimen and Detergent Injections to carry off the *Pus*, and for this purpoſe you may make uſe of a Decoction of *Agrimony* with *Honey*, or *Syrup of Wormwood*, adding (if the Corruption be great) a little *Spirit of Wine*.

If the Apoſthume degenerate into a Cancerous Ulcer, it will only admit of a Palliative Cure.

Of Schirroſities of the Womb.

Schirrhous Swellings frequently proceed from the application of Cold and Reſtringent Medicines to the VVomans Belly, or injecting ſomething of that kind into the Womb.

If

If the internal Orifice only is Schirrhous, the VVomb is not larger than the common ſize; but if the whole Body of it be affected, it is exceedingly tumefied, and this often happens upon an Inflammation after Labour, or upon ſome diſorder or ſuppreſſion of the Courſes. For the more certain knowing there is a Schirroſity in the Womb, lay your Hand on the Womans Belly, or introduce your Finger into the Womb, and you will find it big with an extraordinary hardneſs. The inner Orifice is larger, harder, ſhorter, and more unequal, than it ought if there be no Inflammation, or the *Schirrus* be not diſpoſed to Cancerate, it is indolent, but if it be inclined to either of theſe, the Pain is very great.

If the Womb be Schirrous, the Woman finds a great Laſſitude, a Weight at the bottom of her Belly, feels Pains in her Reins, Groins and Hips, and has a frequent Motion to make Water, and theſe Pains increaſe when ſhe makes an effort to void her Excrements, becauſe the Womb compreſſes the *Rectum* and the Bladder by its Weight. The Courſes are entirely ſuppreſt, or in very ſmall quantity, or irregular, which is occaſioned by the Obſtruction of the Part.

The beſt way to begin the Cure, is by bleeding in the Arm, and gentle Purging, for violent Purging in this caſe is hurtful, and exaſperates the Diſeaſe, Emollient Oyls, Greaſes and Cataplaſms applied to the Belly, and emollient Injections into the Womb are ſerviceable, after which the Patient may uſe the Whole or Half-bath. After ſhe has for ſeveral days been treated in this manner, let her bleed in the Foot, refrain from Copulation, and obſerve a cooling Diet to allay the Heat of the Blood. Thin Milk, eſpecially that of Aſſes is good in this Diſtemper, but the drinking the Mineral Waters, is yet better.

Of a Cancer *of the Womb.*

This is commonly the conſequence of a Schirroſity, Inflammation or Apoſthume, after Labour. Ill conditioned Whites, and virulent Gonorrhœas of long ſtanding, conduce very much to this, by the eroſion of the Womb.

It ſometimes happens to Women upon a ceſſation of their Courſes, becauſe the Veſſels being ſtopt by degrees, the blood brought to the Womb, ſtagnates, corrupts and ulcerates the ſubſtance of the Part, which ſoon becomes Cancerous.

When a Woman has a *Cancer* in the Womb, ſhe feels a pricking pain, and a heavineſs which is cauſed by the ſharpneſs of the Humours, and the bearing down of the Womb. This Pain extends to the Reins and Groins, and the Patient feels a great Weight at the bottom of her Belly, and a general Laſſitude of the whole Body; ſhe has a difficulty of Urine, and a Serous, Fætid, Virulent, Blackiſh Gleet comes from the Womb. Sometimes the Blood comes away wholly fluid, and ſometimes it is concreted. When the Ulceration is in the inner Orifice of the Womb, it may be perceived by the Finger, or may be ſeen by the help of the *Speculum Matricis*; but if it be in the bottom, there is no way to know it but by the condition of the Matter which comes from it, and by the Symptoms above mentioned. Theſe Ulcers are very unequal, Sordid and Stinking, and the Corruption is ſometimes ſo great, as to breed Worms.

Cancers of the Womb are incurable, and only admit of Palliating Remedies, which abate the violence of the Pains. The Patient muſt not take any thing ſharp, either inwardly or outwardly, for fear of increaſing the Diſeaſe and Pain, and haſtning her End.

Women who have a *Schirrhus* or Apoſtem in their Wombs, or who are ſubject to Flooding, or have a Ceſſation of their Courſes, eſpecially when they are advanced in years, are moſt of all ſubject to *Cancers*. Such Perſons as are threatned with this Diſeaſe, upon the account of the ceaſing of their Courſes, have no better Expedient than to bleed in the Arm at convenient times, to ſupply the defect of that Evacuation, and by this means prevent too great a Redundancy of Blood and Humours in the Womb; and this they ought to do for ſeveral years together, till thoſe Veſſels which conveyed the Blood are very much diminiſhed. If ſuch a Woman has been very ſubject to frequent Hæmorrhages, let her refrain from Copulation, becauſe this Action brings Blood into the part; Let her obſerve a cool and moiſt Diet, and ſhun all Aperitive, Diuretick or Violent purging Medicines; Let her drink new Milk from the Cow to ſweeten the Blood, and frequently drink Broths made of Pullets, whoſe Bellies were firſt ſtuffed with the cold Seeds. The Cow whoſe Milk ſhe drinks muſt be ſound and not overheated, fed with good Paſture, and one who has not lately Calved; for all Errours of this kind are dangerous.

Of

Of a Looſneſs hapning to a Woman newly laid.

A Looſneſs when it happens to a Woman ſoon after her Delivery is dangerous, becauſe it diverts the Cleanſings from flowing to the Womb, and by this means often proves fatal to the Patient. That which makes this caſe dangerous, is, that Remedies proper to ſtay the Flux, ſuch as Aſtringents and Purgatives, are not to be admitted of, eſpecially at firſt. In this caſe therefore give the Patient ſtrong Broaths to ſtrengthen her, and abate the Flux, give her Anodyne Clyſters made of a ſimple Decoction of *Bran*, or the cooling Plants either alone, or with the addition of *Milk*, or the *Yelks of Eggs* to abate the Pain, or let her take ſome grains of *Laudanum* in the Yelk of an Egg. If the Looſneſs be accompanied with a Fever, let her bleed. However, if there be a viſible Danger of the Womans loſing her Life by the continuing of the Flux, uſe all common Remedies in this caſe, without the leaſt Scruple, and when that is ſtopt, attempt to procure an evacuation of the Cleanſings, which for a time were ſuppreſſed.

Of Ruptures of the Belly in Women with Child.

The Womb ſometimes is diſtended to ſo large a ſize, that it breaks through the *Peritoneum*, and cauſes Ruptures ſo large, as to contain the Womb and Child in it. Theſe Ruptures ſometimes happen above and below the Navel, between the *Muſculi Recti*, in the Navel it ſelf, and in the Groins, which are the weakeſt parts of the Belly. They commonly proceed from great Straining of a VVoman in Labour, or vehement Vomitings, or violent and frequent Sneezing, or ſome accidental blow on the Belly. This Diſeaſe cauſes want of Digeſtion, Vomiting and ſevere Cholick pains, and often when the Gut which is fallen cannot re-enter, Death is the Conſequence, or at leaſt there is a neceſſity of making an Inciſion into the Belly, as in a *Bubonocele*.

To avoid Accidents of this Nature, the Woman muſt be forbid to lace her ſelf, or ſtraiten her Belly, that it may have room to extend it ſelf every way. But if ſhe happen to have a Rupture, ſhe muſt wear a Bandage with Compreſſes adjuſted to the Part, to prevent the Guts from intruding themſelves into the Swelling. If the Rupture be in a place

into which the Womb can insinuate it self, the Woman must have an especial care to prevent this Fatal Accident, by the help of good Bandages, and she would do well to keep her Bed during her being with Child.

Of an Inflammation of the Breasts after Delivery.

If a Woman with Child has received a Blow on her Breasts, or compressed them by lying on them, or has left too great a quantity of Milk in them, without drawing them, an Inflammation will infallibly ensue, which sometimes is the cause of Apostems or Schirrosities, which degenerate into *Cancers*. The Breasts being very sensible when they are inflamed, soon produce a continual Fever with *Deliriums*.

The best way to prevent an Inflammation of the Breasts, is to procure a good Evacuation of the Cleansings, and if they are suppress to provoke them, that so all the Humours which flowed too plentifully to the Breasts, may take their course downwards. For this purpose bleed her first in the Arm, and then in the Foot. In the mean time Embrocate the Breasts well with a Mixture of *Oyl of sweet Almonds*, and after that apply *Galen's*, *cooling Emplaster*, with a third part of *Populeum*, or a Cataplasm made of the *Setlings found in a Cutlers Grindstone Trough*, and Oyl of Roses with a little Vinegar, or if the Pain be violent, make a Cataplasm with the *Crumb of White Bread*, *Milk*, *Oyl of sweet Almonds*, and the *Yelks of Eggs*, and apply it to the Breasts, and over that lay Compresses dipt in *Oxycrate* or *Plantane Water*. But great caution is to be used in Astringent Remedies, least if they be too strong, they occasion a *Schirrus*, which in time may become Cancerous.

After the Height of the Inflammation is over, let Discutients be used to dissipate the Milk, which flows in too great abundance to the Breasts, but the best way in this case, is to draw them by Sucking; for if any great quantity be left in the Breasts, it will necessarily Suppurate. However it is necessary to use discussing Applications first, because Sucking brings Milk into the Breasts. But if the Milk runs off it self leave it, for this is enough to empty them. Milk may be resolved by applying a Cataplasm of *pure Honey* to the part, or rubbing them with a red Cabbage Leaf, having first deadned it by the Fire, and taking care not to straiten the Breast. The following Discutient is very good. Take a good *Red Cabbage*

bage and boil it in *River Water* till it be ſoft, and the VVater evaporated. Pound this in a Wooden or Stone Mortar, and after paſs it through a Sieve, adding *Honey* and *Oyl of Camomil*, and apply this Cataplaſm to the Breaſts.

Let the VVoman in the mean time uſe a cool Diet, not very Nouriſhing, to prevent breeding too much Chile. Let her keep her Body open, that ſo the Humours may diſcharge themſelves downwards, while the Inflammation remains; let her lie in Bed on her Back, becauſe when ſhe is up, the Weight of her Breaſts increaſes the Pain. On the fourteenth or fifteenth day after her delivery, when the Cleanſings are pretty well come away, and ſhe is free from a Fever, ſhe may be purged as often as ſeems convenient. If notwithſtanding the uſe of theſe Remedies the Pain do's not abate, there is reaſon to believe there is *Pus* in the Breaſts.

Of the Curdling and Clodding of Milk in the Breaſts.

About the fourteenth or fifteenth day after Labour, the Milk often is apt to Curdle, and then the Breaſts become hard, unequal, and rugged, without any Redneſs, and all the Glands filled with curdled Milk, may eaſily be diſcerned; The VVoman finds a great Pain, and cannot Milk them as before, ſhe finds a Shivering in her Back, which ſeems to be like Ice. This is followed by a Fever of four and twenty Hours continuance, and ſometimes leſs, if the clodding of the Milk do not turn to an Inflammation of the Breaſt, which will undoubtedly happen, if it be not emptied or diſſipated.

This clodding of the Milk, for the moſt part proceeds from the Breaſts not being well drawn, either becauſe ſhe has too much Milk, or the Infant is too weak, or ſhe has no deſire to be a Nurſe; for the Milk in theſe caſes remaining in the Breaſt, ſours and clods. This Accident may ſometimes happen from taking Cold, or keeping the Breaſts not well cover'd.

The moſt certain Remedy in this Caſe, is to draw the Breaſts ſpeedily, till they are well evacuated, but becauſe the VVoman is not ſoft Milcht, and the Child cannot draw them ſtrongly enough, let another Woman draw them till the Milk comes freely, and then ſhe may give the Child Suck; and to the end that ſhe may not afterwards breed more Milk than the Child can draw, let her uſe a Diet that yields but little Nouriſhment, and keep her Body open.

pen. But when it happens the VVoman neither can nor will be a Nurſe, then her Breaſts muſt not be drawn, for fear of attracting more Humours, for the Diſeaſe will ever recur, if they be not emptied; wherefore it is neceſſary to prevent the coming of any more Milk into them, and to reſolve and diſſipate that which is there. For this purpoſe the Woman muſt be bled in the Arm, have ſtrong Clyſters given her. Bleeding in the Foot and Purging, are very ſerviceable in this Caſe, and to reſolve and diſſipate the curdled Milk, apply ſome Cataplaſm above recommended, as that of pure *Honey*, or the *four Meals* boiled in a Decoction of *Sage*, *Mint*, *Smallage* and *Fennel*, mixing with it *Oyl of Chamomil*, with which Oyl the Breaſts may be well anointed. Cloths laid over pots of *Salt Butter* are very good, after having uſed all things proper to reſolve the concreted Milk.

Of Apoſtems in the Breaſts of a Woman new laid.

If a Woman feels a great Pain, and there be a ſtronger Pulſation in one place than another, a Hardneſs, a Livid Colour, with a ſoftneſs in the midſt, it is a ſign the Breaſts will Apoſtemate.

To ſuppurate the Apoſtem, apply on the Breaſts an Emollient and Ripening Cataplaſm made of *Mallows*, *Marſh-mallows*, with their Roots, *Lily Roots* and *Linſeed* bruiſed, and boiled to a Pap, that it may be pulped through a Sieve, and ſo no hardneſs may be left to hurt the Breaſts, which at that time are in great Pain, after mix a good quantity of *Hogs-greaſe* or *Baſilicon* with it, or lay a little Cloth thick ſpread with the ſame *Baſilicon*, upon the place where it is likely to break, and the Poultis all over it, renewing it twelve Hours after, or at fartheſt next day, continuing this Remedy till the Apoſtem be ripe. Or you may make uſe of the *Emplaſtrum Divinum*, malaxed with *Oyl of Lilies*; This is preferable to all others of the like Nature, for this purpoſe. As ſoon as the Apoſtem is Ripe, it muſt be opened, if it open not of it ſelf. The time when it is fit, may be known by the ceaſing of the beating the Woman felt before in her Breaſts, and that the Pain and Fever is very much abated, and then beſides the middle of the Apoſtem is raiſed to a Point, and very ſoft, and the contained Matter may by the Finger be perceived to fluctuate. The Apertion muſt be made with a Lancet, or with a grain or two of ſome Cauſtick,

Cauſtick, making it large enough to evacuate the concreted Matter. It is beſt to uſe the Lancet, becauſe there is no loſs of Subſtance, and the Scar is not ſo Diſfiguring. The Orifice muſt be made in the moſt commodious place, for the Evacuation of the Matter, taking care that none of the large Veſſels near the Arm-pits be opened. After that, all the Matter and putrified clodded Milk is diſcharged, deterge the Apoſtem after the ordinary manner, obſerving not to make the Tents too long, or too hard, but of very ſoft Doſſils of Lint, without thruſting them too far in, and faſten a Thread to the firſt to draw it out, if there be occaſion, becauſe theſe Apoſtems are moſt commonly deep. If there be great Pain, dip the Pledgits in *Oyl of Eggs*, or *Baſilicon* mixt with ſome Digeſtive, if there remain any thing yet to Suppurate; after this deterge the Ulcer with Honey of *Roſes*, or *Unguentum Apoſtolorum*, laying on the *Emplaſt. Divinum*, to ſoften and diſcuſs the remaining hardneſs.

If there be ſeveral Apoſtems in different places of the Breaſt, in this caſe there is no need of laying open every one of theſe ſmall Holes, but it ſuffices to make one or two Apertures in ſome depending part large enough, becauſe the Breaſts are Spungy, and theſe Apoſtems communicate with each other. But the moſt prompt Remedy, is to drive the Milk quite back; and for this purpoſe give the VVoman Clyſters, and purge her frequently, confining her to a Diet which is not very Nouriſhing.

You muſt not always ſtay till the Cataplaſms break the Abſceſſes, and ſometimes there is a neceſſity of opening them with a Lancet, becauſe if the Matter Stagnate too long in the Breaſts, it will corrode that Glandulous part, and form Sinuoſities very difficult to cure.

Of the Excoriation and Loſs of the Nipples.

Very often Women that are Nurſes, and eſpecially the firſt time, are ſubject to have their Nipples excoriated, for the ſmall holes of the Nipples not being ſufficiently opened, the Child takes more pains to Suck, than when the Breaſts do almoſt run of themſelves. Sometimes theſe Chaps and Excoriations, do ſo encreaſe by the Childs continual Sucking, that in the end it quite takes the Nipple off from the Breaſt, and the VVoman is no longer capable of giving Suck, and there remains an Ulcer very hard to be cured.

This

This may ſometimes happen from Childrens biting and mumping the Nipples, and ſometimes their Mouths are ſo hot, that they make the Nipples ſore, as when they have thoſe little Ulcers called *Aphthæ* or a Thruſh, and much ſooner if they have the Pox, with which they infect their Nurſes.

Theſe Excoriations if they are neglected, at length become very Malignant Ulcers. VVherefore as ſoon as they begin, let the Woman forbear giving her Child Suck, till they are perfectly cured, and in the mean time drive back the Milk, for fear of an Inflammation, from too great abundance of it. If only one Nipple be ſore, ſhe may give Suck with the other; to theſe ſore Nipples, Deſiccative Medicines muſt be applied, as *Alom* or *Lime-water*, or they may only be bathed with *Plantane Water*, laying on them ſmall ſoft Rags dipt in thoſe Liquours, or apply an Emplaſter of *Ceruſs* or *Pompholyx*, or *Starch*; but an eſpecial care muſt be taken that nothing be applied which may diſguſt the Child, for which reaſon many only uſe *Honey of Roſes*.

To prevent Hurts in theſe Parts, and hinder the Womans Clothes from cleaving to them, let a little cap of Lead be put on, as well to defend them, as to give Iſſue to the *Sanies*, which proceeds from thoſe little Ulcers, or that the Milk which diſtills from the Breaſt, may paſs that way.

If the Child has ſucked off the Nipple, the Milk muſt then be quite dried away, becauſe otherwiſe it would be impoſſible to cure theſe Ulcers, which in time would become callous and malignant.

If the Child be put to another Nurſe, and the Ulcers in its Mouth have no Malignity, tis enough to waſh them with *Barley Water* mixt with a little *Juice of Citron*, and let the Nurſe uſe a cooling Diet.

When the Nipples are quite loſt, the ſmall Holes are cloſed up by the Ulcers, but if notwithſtanding ſhe ſhall deſire to give Suck, another Woman may by degrees make her new Nipples, after the Ulcer ſhall be perfectly healed, whoſe Sucking by degrees will draw them out, and by this means unſtop the Root of the old Nipples, or if ſhe have no Woman to Suck her, let her uſe a Glaſs Inſtrument, with which ſhe may her ſelf Suck them five or ſix times a Day, and to ſhape them and preſerve them when they are drawn out, let her put on them a ſmall cap of Wood.

Of the Swelling of the Legs and Thighs, in a Woman newly laid.

If the Swelling be very great, there be an Inflammation, and it proceed from Suppreſſion of the Cleanſings; if there be a Fever, difficulty of Breathing, a great Tenſion and Pain in the Belly, the caſe is dangerous. If there be but an indifferent Swelling only, without any of the above mentioned Accidents, there is no great difficulty in the Cure.

For this purpoſe, procure a good Evacuation of the Cleanſings, give the Woman an Aperitive Ptiſan, made with the Roots of *Fennel*, *Parſley* and *Dogs-graſs*, with a little *Chryſtal Mineral*. Sometimes give her an ounce of *Syrup* of *Maiden Hair* in a Glaſs of the Ptiſan, with five or ſix drops of the *dulcified Spirit of Salt*, and about half a dram of *Sal Polychreſtum*. If ſhe have no Fever, and it be fifteen days after her Delivery, ſhe may be purged.

Of the Suffocation of the Womb after Delivery.

Some VVomen in Hyſterick Fits have a high Pulſe, others a very low one, as it were ſunk in, others have ſcarce any at all; ſome became pale and motionleſs, others have a good colour in their Cheeks, and have ſeveral Convulſions, ſome have not the leaſt appearance of Breath, and others Breath with great Difficulty, and great Heavings of the Breaſt; ſome are inſenſible, without remembring any thing they have done, or ſaid; others never loſe their Reaſon or Judgment, ſome are Gay and Merry, Laughing and Singing, others are Sad and Dejected. Some are attacked with frequent Fits, others very ſeldom. The Fits ſometimes laſt for ſeveral Hours or Days, and ſometimes are ſuddenly over. The moſt ordinary Signs of the Hyſterick Paſſion, are difficulty of breathing, which cauſes a Suffocation with a great conſtriction of the Throat, as if the Patient had a Morſel which ſhe could not ſwallow, and the Throat were griped with a Mans Hand. There is a great VVeakneſs and Palpitation of the Heart, *Nauſea's*, and ſometimes a Flux of VVater and Seroſities from the Mouth; frequent yawning, ſometimes is a Fore-runner of the Fit. The VVoman feels a Pulſation of the Arteries in the bottom of her Belly, a leaping and contraction of the VVomb, a Ruſling of wind in the Stomach

Stomach and Guts which diſtends them, and bears up the Diaphragm, ſometimes ſhe is delirious in the Fit, and has Convulſive Motions preceded by a Pain, VVeight, and Dizzineſs of the Head, Dazling of the Eyes, Drowſineſs and Forgetfulneſs. Sometimes after theſe Convulſive Motions, ſhe is thrown into a Mortal Apoplexy, or a Palſie of one ſide, which continues for ſeveral years.

To prevent this Diſtemper, if there be a Suppreſſion of the Cleanſings, bring them down by relaxing all the parts round the VVomb, and the Thighs by a half-Bath, by bleeding in the Foot and purging. If it be a Big-bellied VVoman who labours under this Diſtemper, let her only bleed, and keep her Body open with Clyſters. The uſe of the Mineral VVaters is admirable, to prevent the Hyſterical Paſſion, in caſe the Patient be not with Child. If the Suffocation proceed from any extraneous Body in the VVomb, extract it, or procure its expulſion by Medicines. Let the Patient avoid all ſweet ſcented things, all Sweet-Meats, or any thing prepared with Sugar, all Melancholy and diſturbing Paſſions, and keep her Body open. If ſhe be a Marryed VVoman, let her often embrace the privileges of that State. if not, let her keep a cooling Diet, uſing Emulſions and Bathing.

In the Fit which is ordinarily attended with difficulty of Breathing, Suffocation, VVeakneſs, Palpitations of the Heart, it is uſual to preſent to the Patient things which have a very ill Scent, as *Partridge Feathers*, or Soals of Shooes burnt. Some fling a Dram of lighted *Camphire* into a pot of VVater, leaving it till it be extinguiſhed, and give this VVater to the Patient to drink, or give two or three drops of Oyl of *Amber* in a Spoonful of Broath, or *Orange-flower Water*. But the beſt way is to unlace the Patients Cloths, and give her a Spoonful or two of *Cinnamon-Water* or *Aqua-vitæ*; this is a good Cordial, and promptly diſſipates the VVindineſs in the Stomach, which is the cauſe of theſe Suffocations. A Spoonful or two of VVine alone is very good. Smelling to *Spirit* of *Wine* is better than Vinegar. The ſcent of *burnt Paper*, or a *Muſket Match* is very good. If ſhe be with Child, ſhe may not ſmell too ſtinking Scents, for fear ſhe Miſcarry. If ſhe be not with Child, let her take Sneezing Powders, with Powder of *Betony*, or *Tobacco* without Perfume. You may put a grain or two of Salt into the Patients Mouth, to bring away the VVater and Seroſities which flow thither in great abundance.

If

If any large Evacuations precede the Fit as a great Looſneſs, Flooding, or an immoderate Flux of the VVhites. or a great abundance of the Cleanſings, and the VVomans Pulſe be low and languid, her Face pale, and her Body cold, you muſt forbear bleeding; on the contrary, it ſhe have a Florid Colour in her Face, her Pulſe be high, and there be a Suppreſſion of the Courſes or Cleanſings before, and ſhe have Convulſive Motions, I think bleeding is very proper, firſt in the Arm, and after in the Foot.

Of the Whites.

It is very difficult to diſtinguiſh VVhites in VVomen, from virulent *Gonorrhœa's*. In the VVhites the Matter is whiter, more ſerous, eſpecially if it be copious, and leſs fœtid than in *Gonorrhœa's*. On the contrary, in Venereal caſes it is more ſtinking, thick, blackiſh, yellowiſh, greeniſh, and ſometimes is of a rediſh Colour, by the mixture of a bloody Seroſity. VVhen a VVoman has the VVhites, the Courſes become irregular; ſometimes inſtead of her Courſes, ſhe has a Flux of Blood which becomes ſerous, and appears like the VVater in which Fleſh has been waſhed; when it is a little abated, after ſome time ſome clods of black corrupted blood come away among the putrid Matter. A VVoman who has the VVhites, can lie with her Husband without pain, but ſhe who has an Ulcer cannot. The Matter which comes away in the VVhites, moſt commonly is VVhite, Serous, not unlike VVhey, without any ill Scent, tho' ſometimes it is yellow, ſtinks, and by its Acrimony cauſes a great Smarting of the Parts. It is very difficult to diſtinguiſh the VVhites from *Gonorrhœa's*. VVomen with Child are more ſubject to this Diſtemper, which is occaſioned by the Suppreſſion of their Courſes. Few VVomen are wholly exempt from this inconvenience, but at ſome time or other labour under it; but ſome are much more ſubject to it than others. Women who have not their Courſes regularly, thoſe who are Phlegmatick, have a ſoft Skin, are pale coloured, or lead a Melancholy Sedentary Life, are moſt of all ſubject to the Whites; but young Girls who are not of an Age to have their Courſes, never have them. The Whites weaken the Woman, humect and relax the Womb to that degree it cannot contract and cloſe it ſelf, and by conſequence cauſe Barrenneſs. The Womans Countenance becomes pale, her Legs ſwell, ſhe loſes her Appetite, has Pains in her Back, Weakneſs,

Weakneſs, Palpitation of Heart, and Hyſterick Fits. If the Whites continue long the Woman is emaciated, and becomes Hectical; Nay, ſometimes ſuch a Relaxation of the Womb enſues, that it becomes Cancerous if neglected.

For the Cure of this Diſtemper, Bleed and Purge the Patient well, and preſcribe a good Diet to her; let her go to the Baths, and after drink the Chalybeate Waters, or others of the like Nature. Phlegmatick Women whoſe Fleſh is tender and ſoft, ought to drink the hot VVaters, as thoſe of *Bourbon* and *Vichy* in *France* [or the Bath in *England*] or a Sudorifick Decoction made of the Roots of *China* and *Salſa-parilla*, taking for a fortnight before, a Glaſs of a Laxative and Diuretick Ptiſan made of *Maiden Hair*, Roots of *Dog-graſs*, Aſparagus, *Smallage* and *Fennel*, with a Dram of *Senna*, adding every three days, four or five drops of the *dulcified Spirit of Salt*, or half a Dram of *Sal Polycreſtum*; and during this time, let her obſerve a good Diet, refraining from Copulation, and avoiding all Melancholy and Dejection of Mind. The moſt proper time to begin the uſe of Medicines, is immediately after the Courſes are over. After theſe Medicines, the Patient may uſe Aſtringent Injections made of equal parts of *Plantane* and *Myrrh Water*, but ſhe muſt forbear when the time of the Courſes is near, for fear they cauſe a Suppreſſion; for my part, I would not adviſe any VVoman to uſe Styptick Applications, becauſe this part is the common Sink, where all the Filth of the Body is diſcharged.

When the VVhites are very Acrimonious, and cauſe a ſmarting of the Parts, *Barley-Water* or *Whey*, or ſimple Water may be injected three or four times a Day, (except in the time of the Courſes,) to allay the Heat and Pain, preſcribing a good Diet, and between whiles, purging her till the Cure be compleated.

Tho' the Patient may ſeem to be cured, and the Whites ceaſe, or at leaſt are very much abated, the VVoman muſt notwithſtanding frequently take Medicines, and all her Life obſerve a good Diet, otherwiſe ſhe will be in very great danger of a Relapſe.

Of Dieting and ordering a New-born Babe.

It is not uſual to give a Child Suck, till ten or twelve Hours after its Birth, and then the Nurſe muſt Milk a little into

into its Mouth and on its Lips to give it a Reliſh, and when the Child has taken the Breaſt ſhe muſt ſqueeze it till it be accuſtomed to Suck of its own accord.

If a Nurſe have plenty of Milk, give the Child no other Food for the firſt two Months; but for the firſt two or three Days, give it but a little at a time, for fear of overcharging its Stomach, and after encreaſe the quantity. When the Child is grown a little bigger, you may give it either in the Day or Night, as much as it deſires, a little and often, for if it take too much at a time, it vomits it up, the Stomach being too weak to digeſt it. But if you can govern the Child, it would be better to give it the Breaſt but once every two Hours, and never in the Night-time, unleſs when it wants Sleep.

After the Child has been fed the firſt two or three Months with Breaſt-Milk only, you may give him a Pap made of Flour and Milk, though but little at firſt, and not too thick neither leſt his Stomach be overcharged. That this may be eaſier of Digeſtion, put the Meal in an Earthen Pan into an Oven, as ſoon as the Bread is drawn, ſtirring it often to dry it equally. Pap made thus is much better than the common way; for being made with raw Flour, it is very difficult to boil it well, without conſuming the beſt part of the Milk, leaving the thickeſt part behind, which by its long boiling loſes its goodneſs. When the Child has taken Pap thus made, which muſt be but once a day, (eſpecially in the Morning) or twice at moſt, the Nurſe may give it Suck to waſh it down into the Stomach, and dilute it there.

If Pap be given to a Child newly Born, as ſome Women indiſcreetly do, it cauſes Obſtructions, Difficulty of Breathing, Gripes, Swelling of the Belly, and Convulſions, of all which Death is the Reſult, and therefore it is beſt to forbear the three or four firſt Months, provided the Nurſe do not want Milk.

When the Child has ſucked its Fill, let the Nurſe lay it to Sleep, not in the ſame Bed ſhe lies in her ſelf, for fear of over-laying it, but in a Cradle cloſe by her Bed-ſide, and let her put a Mantle over the Head of the Cradle, to prevent Duſt falling on its Face, and the Day-light, Sun-ſhine, Candle or Fire in the Chamber from offending it; let her lay it to ſleep on its Back with its Head a little raiſed upon a Pillow, and to make it Sleep the ſooner, let her rock gently with an equal Motion, without too great ſhaking; but that ſhe may not be forced thus to rock the Child every time ſhe

would have him go to ſleep, it is beſt not to uſe him to it at firſt. He may ſleep at any time in the Day or Night, and ordinarily the better he is the more he ſleeps; however if he exceeds in this reſpect, let his Nurſe carry him in her Arms to the Light, ſing ſome little Song to him, ſhew him ſome glittering thing, or dance him in her Arms.

VVhen he is in the Cradle, let it be ſo turned that the Light may be directly in his Face, that he may not be tempted to look aſide; for doing ſo often, his Sight will be perverted, and he become Squint-eyed. But the beſt way is to let him ſee no Light at all.

The Nurſe muſt open and change the Child, at leaſt twice or thrice a Day, and ſometimes in the Night too, if it be neceſſary to cleanſe him from his Excrements, and ſhift the Blankets, which muſt be put into a Bucking-Tub, and not ſlightly waſhed, as moſt hired Nurſes do; becauſe there comes a certain Salt from the Excrements, which inſinuates it ſelf into them, and cauſes a great itching, ſmarting, and excoriation of the Childs Body.

The Child muſt always be opened before the Fire, and his Blankets and Clouts well warmed and dryed, before he be put into them, leaſt their cold and dampneſs, cauſe a Cholick and Gripes. The Nurſe muſt put Rags behind his Ears, and under his Arm-pits, to dry up the Moiſture. During the firſt four or five Days, ſhe muſt be careful not to make the remaining part of the Navil-ſtring fall off too ſoon, before the Veſſels be cloſed, and every time ſhe opens the Child, ſhe muſt ſee whether the Navel for want of being tied faſt do not bleed; and after the end is fallen off, let her ſtill for ſome time Swathe the Navel, continuing to keep a Compreſs on it till it be well cicatrized, and ſomething ſunk in. Beſides this, let her put upon the Mold of the Head under the Biggin, another Compreſs to keep the Brain warm, and prevent the Childs taking cold. Let her alſo be very careful not to ſuffer the Child to cry too much, eſpecially at firſt, leaſt the Navel be protruded outwards, and cauſe an *Exompbalos*, or a Rupture in the Groin. The beſt way to quiet him is to give him the Breaſt, and to lay him clean and dry, and preſent ſomething to amuſe and pleaſe him.

Some fooliſh Nurſes uſe to ſuck the Childs Breaſt, to draw out the Seroſities, and form a Nipple in Girls, but this is a ridiculous Practice; it ſuffices in this caſe to apply Rags dipt in *Oyl of Roſes* and *Vinegar*, and forbear Swathing the Part too ſtrait.

Of

Of the Weakneſs of New-born Children.

Children ſometimes ſuffer ſo much by a bad Labour, that it is difficult to know whether they are alive or dead, nor any part of their Body having the leaſt ſenſible Motion, and being as Blue and Livid, eſpecially in the Face, as if they were choaked. However, you may be aſſured a Child is alive, if laying the Hand upon the Breaſt you feel the Motion of the Heart, or touching the Navel-ſtring near the Belly, a ſmall Pulſation of the Arteries may be perceived.

The beſt-help in this caſe, is to lay him ſpeedily in a warm Bed and Blanket, and carry him to the Fire, and there let the Midwife ſup ſome Wine and ſpout it into his Mouth, repeating it if there be occaſion; let her lay Rags dipt in warm Wine to the Breaſt and Belly, and let the Face be uncovered, that he may draw Breath the eaſier, let her keep his Mouth open a little, and cleanſe his Noſtrils with ſmall Linnen Tents dipt in White-wine.

Of Contuſions or Bruiſes of a New-born Child.

Children frequently receive Bruiſes on the Head in their Birth, and ſometimes have a knob near as big as an Egg, eſpecially if the Mother be in Years, and it be her firſt Child, becauſe the inner Orifice of the VVomb is Callous, and cannot be dilated without great difficulty, and the Mid-wife ſometimes do's much miſchief by handling it too roughly.

Theſe Tumours are often ſo large, that they hinder the Artiſt from diſcovering which part preſents, and often times make them think it is the Shoulder which they feel. But this Errour is eaſily diſcerned, becauſe theſe Tumours though feeling fleſhy, are notwithſtanding harder than any Shoulder or Buttock of a Child, which parts are always ſoft and without Hair, as the Head hath; beſides the Bones may be eaſily perceived, if the Finger being anointed with Oyl or freſh Butter, it can be introduced into the inner Orifice, for the Parts within the Womb are not Swelled. If a Child comes with any part beſides the Head, and they remain a long time preſt in the Paſſage, they will ſwell likewiſe.

The beſt way to prevent theſe ſort of Tumours, is to procure a ſpeedy Delivery. To this end greaſe well the In-

ternal Orifice of the VVomb to relax it, and diſpoſe it to give way for the paſſage of the Child; and as ſoon as the Child is born, foment the Tumours with *warm Wine* or *Spirit of Wine*, and lay Compreſſes dipt in the ſame on them; ſome Midwives only dip a Compreſs in *Oyl* and *Wine* beat together. If a Tumour will not be diſcuſſed by this means, but comes to Suppuration, the Matter muſt be let out as ſoon as is poſſible, for fear it corrupt the Bones of the Head; In this caſe it muſt be opened with a Lancet, and an Emplaſter of *Betony* applied on the VVound. If it be any other Part than the Head which is ſwoln, let it be wrapt in Compreſſes dipt in a Decoction of *Provence Roſes*, *Camomil Flowers*, and *Melilot*.

Some Male Children have the *Scrotum* very much ſwelled, which may proceed from a Contuſion or VVaters contained in it. In both theſe caſes, Compreſſes dipt in VVine with *Roſes* boil'd in it, muſt be applied.

The greateſt Miſchief is, when by the badneſs of the Labour or unskilfullneſs of the Midwife, a Leg or Arm is broken or diſlocated; if this happen a Surgeon muſt be called, and the Part dreſt after the ſame manner as in grown Perſons, having regard to the VVeakneſs and ſoftneſs of the Bone.

Of the Mould and the Sutures of the Head being too open.

Very often Children who come before their time, have the Mould of their Head, and the Sutures open. This ariſes from the diſtance and ſeparation of the Bones from one another, which are not ſteddy, but may be moved to and fro, and yield on every ſide. VVhen this happens, you muſt not think to bring the Bones together by binding the Head ſtrait, for this would preſs the Brain which is very tender, and kill the Child. It is ſufficient to bind them ſoftly with a ſmall Croſs-cloth, to prevent the inconvenience of their being unſteady, and commit the reſt to Natures Work, which in time will unite the Bones.

There are ſome Children which have the Mould open till they are three years old more or leſs, according to their Strength. In this caſe, 'tis convenient to cover the Part with a Linnen Cloth three or four times double to prevent taking cold, and to defend the Brain from external Injuries.

It happens ſometimes, that although the Bones be big enough to unite in all Parts; yet they are ſeparated from each other in the place of the Sutures, by a quantity of Waters contained between them and the *Dura Mater*, and ſometimes between the Skin and the *Pericranium*, or the *Pericranium* and the Skull, and ſometimes in the *Sinus* of the Brain it ſelf. If the VVater is contained between the Teguments and the Bones, and the Swelling be not very large, the Child may be cured by opening and evacuating the VVaters, or diſcuſſing them.

Of Gripes and Pains in the Belly of a young Child.

Many Children are ſo griped, that they cannot forbear crying out Night nor Day. This is the firſt Diſtemper which happens to them, and they often die of it.

The principal cauſe of theſe Gripes, is the *Meconium* which is contained in their Guts, which by its long ſtay there grows ſharp, and pricks their Membranes, or becoming hard, the Infant cannot void it, nor the new Excrements, which proceed from the Milk which he firſt Sucks. It ſometimes happens becauſe the Child not being able to Suck with eaſe, he ſwallows in ſucking the Milk with Difficulty, much Air and VVind, which being retained in the Stomach, and ſliding into the Guts does diſtend them, and cauſe a great deal of Pain.

This VVind is ſometimes cauſed by a Child's taking a greater quantity of Milk than he can digeſt, or the Woman giving her Breaſt-Milk ſoon after Labour, before it be purified, or perhaps becauſe the Child has taken Cold. Very often theſe Gripes proceed from giving him Pap too ſoon, or not well boiled; becauſe this is Groſs, Viſcous, and apt to engender VVind in the Stomach. Worms ſometimes by their ſtirring and biting, do very much torment Children. In the laſt place, the Mid-wife may have cauſed this by forcing back the cold and clodded Blood out of the Navel-ſtring before it be tied.

To avoid theſe Pains, the Nurſe muſt avoid giving the Child ſuck till the next Day, leaſt the Milk mix with the Excrements, and ſo corrupt and grow ſour, encreaſing the quantity by little and little, till the Child be uſed to this ſort of Food. If it be the *Meconium*, which by its long ſtay cauſes theſe pains; give them at the Mouth a little *Oyl of ſweet Almonds* or *Syrup of Roſes*, and put a Suppoſitory

made of *Beet* ſtalks into the Fundament, or a *Sugar Almond* dipt in *Honey*, or a ſmall Clyſter.

If the Child cannot Suck, and this proceed from its being Tongue-tied, the *Frænum* muſt be cut in the manner ſhall be taught in its proper place, and if the Nurſe be hard Milcht, change her for another.

VVhilſt the Child is griped give it no Pap, becauſe this Food do's create Obſtructions, breed VVind, and often cauſe Convulſions.

If the Gripes proceed from VVorms, lay a Cloth dipt in *Oyl of Wormwood* mixt with *Ox Gall* on the Belly, or a ſmall Cataplaſm made with Powders of *Rue*, *Wormwood*, *Coloquintida*, *Aloes*, and the *Seeds of Citrons* incorporated with *Ox-gall*, and Flouer of *Lupines*, and if it can take any thing by the Mouth, give it a ſmall infuſion of *Rhubarb*, or half an Ounce of *conapound Syrup of Succory*, having before given it a ſmall Clyſter of *Milk* and *Sugar*.

VVhen theſe Gripes are cauſed by VVind, or any ſharp Humours in the Guts, anoint the Childs Belly all over with *Oyl of ſweet Almonds*, or *Oyl of Wallnuts*, *Camomil*, and *Melilot* mixed together (having firſt warmed them) in which alſo a Cloth may be dipt to lay upon it, or a ſmall Pancake may be made with an *Egg* or two fryed in *Oyl of Wallnuts*, and applied to it, or you may give the Child a little Anodine or Carminative Clyſter as occaſion requires ever keeping him very warm.

Of the Inflammation, Ulceration, Shooting forth, or Rupture of the Navel of a young Infant.

If the Navel-ſtring fall off before it be entirely cloſed and cicatrized, there happens an Inflammation and Ulceration at other times; (although it be outwardly healed, yet not being ſo within) it is dilated, and protruded out till the Tumour be as big as an Egg, which is called an *Exomphalos*. This proceeds from the continual cries of the Child, or ſome violent Cough.

In this caſe endeavour by all means to appeaſe the Childs Cough, and quiet it to prevent its continual Crying, without which the Tumour would daily encreaſe. If the Childs uneaſineſs proceed from the Gripes, they may be Remedied in the manner above directed. If the Navel be inflamed, apply Galen's *Cerate* mixed with a Moiety of *Populeon*, or a ſmall

ſmall Compreſs dipt in a Mixture of *Oyl of Roſes* and *Vinegar*, or *Unguent of Roſes* with *Album Rhaſis*.

When the Ligature is come away, and the Navel is Ulcerated, apply Deſiccative and Reſtringent Medicines, as Rags dipt in *Lime-water*, which is not too ſtrong, or *Plantane-water* with a little *Alum* diſſolved in it. If the Ulcer be very ſmall, lay on it a little Pledgit of dry Lint, ſome add a little Powder of a rotten Poſt. Theſe Medicines are better than Emplaſters which are never ſo drying, by reaſon of the Greaſes and Oyls in their Compoſition, *Ceruſs Emplaſter*, or *Deſiccativum Rubrum*, or *Diapompholygos* are the beſt, in applying which, you muſt obſerve to lay a Compreſs of Rags, and keep it on by Swathing the part, till the Navel be entirely formed, for the Child by its crying breaks the Veſſels, or cauſes an *Exompbalos*.

As to the Rupture of the Navel in young Children, the cure of it muſt not be undertaken otherwiſe than by Swathes and Compreſſes fitted for the purpoſe, at leaſt till ſuch time as they are grown to a competent bigneſs, and then if theſe do not effect the cure, you may perform the Operation.

If after the Inflammation there enſues an Apoſtem, the Child moſt commonly dies; for if it be opened to diſcharge the Matter, the Guts protrude themſelves out, as ſoon as the Child begins to cry. If the Surgeon be ſollicited to make the Operation, let him deliver his Prognoſtick, that ſo the Childs Death if it ſhould ſo fall out, may not be imputed to him.

But if the Apoſtem be ſmall, and the Child has Courage and Strength enough to endure it, let him open it a little, which poſſibly may free the Child from this inconvenience.

Of the Smartings, Redneſs and Inflammation of the Groins, Buttocks, and Thighs of an Infant.

If the Nurſe do's not keep the Child very clean, the Acrimony of the Excrements will not fail to cauſe a Redneſs and Smarting, and Inflammation of the Groins, Thighs and Buttocks. She muſt therefore keep it very cleanly, uſe a cooling Diet her ſelf, and refrain from all things which are apt to heat the Blood, that ſo the Heat of the Childs Water may be allayed. Let her Bath the part inflamed with *Plantane Water*, adding a fourth part of *Lime Water*, or if

the Pain be very great, foment it with luke-warm *Milk*. Many VVomen uſe *Powder of a rotten Poſt*, or a little *Mill-duſt* which they ſtrew on it. *Album Rhaſis*, or *Diapompholygos* ſpread on a Rag in form of an Emplaſter, is not amiſs, but the beſt of all is a Lotion of *Saccharum Saturni*, the effect of which, may be ſeen in an Hour after. VVhen the Nurſe opens the Child, let her be careful to wrap the Inflamed parts with fine white Rags, that they may not by rubbing together, be more galled and pained.

Of Ulcers or aThruſh in the Mouth of a Child.

Very often the Milk of a Nurſe that is Red-hair'd, addicted to Drinking, or very Amorous by its Heat and Acrimony, cauſes ſmall Ulcers in a Childs Mouth, which are called *Aphthæ*, and ſometimes Cankers. Some of theſe are ſimple and ſuperficial, and are cured with much eaſe, ſome again are ill conditioned, and cauſed by a Pocky venom, and happen after Malignant Feavers, or are Scorbutick and putrid; theſe ſpread themſelves to the Throat, make deep Eſcars, and often are Mortal to Children, becauſe they want Strength to undergo the cure.

To cure Ulcers in the Mouth, you muſt take care to allay the Heat of the Nurſes Milk, preſcribing her a cooling Diet, (and Bleeding and Purging her if ſhe be Plethorick) and waſh the Childs Mouth with *Barley* or *Plantane Water*, and *Honey of Roſes*, or *Syrup of dry Roſes*, mixing a little *Verjuyce*, or *Juyce of Citron* to deterge the Viſcid Humours, and cool the Mouth. For this purpoſe, faſten a dry Rag to the end of a little Stick, and dip this in any of the above mentioned Medicines, apply it gently to the Ulcerated part, to prevent the Inflammation from being encreaſed by a violent rubbing. During this, the Childs Body muſt be kept open.

If the Ulcers participate of any Malignity, let ſuch Topicks be applied as will have a prompt effect. For this purpoſe touch them with *Plantane Water* ſharpned with *Spirit of Vitriol*, taking care to prevent the Child from ſwallowing it. The Remedies muſt be ſo much ſharper and ſtronger, as the Ulcers are deeper and more malignant; as ſoon as they are cauterized with this VVater, let the Childs Mouth be waſhed with a Decoction of *Barley*, *Agrimony*, and *Honey of Roſes*, or touch them with the ſame. As often as you ſhall think convenient, at leaſt till a ſtop be put to their

their ſpreading. Some rather chuſe to cauterize theſe with ſmall Tents of *Rags* dipt in boiling *Oyl*, becauſe they apprehend if the Child ſhould ſwallow them, that they could not in the leaſt prejudice it. It will not be amiſs to purge off the ill Humours in the Childs Body, by giving him a little clean *Caſſia* or *Syrup of Succory* with *Rhubarb*. If the Ulcers are Venereal, theſe Remedies will have little effect.

Of the Pain and other Accidents in breeding the Teeth.

The Breeding of Teeth is the cauſe of a great many Accidents, and often proves fatal to Children. In the time of their cutting, they are troubled with Inflammations of the Gums, Feavers, Convulſions, Looſneſſes, eſpecially when the Dog or Eye-teeth cut, and the Child is large, full of Humours and Coſtive.

When the Teeth cut, the Gums and Cheeks ſwell, there is a great Heat and Itching, which often makes Children put their Fingers into their Mouth to rub them, from whence ſome moiſture Diſtils down into the Mouth, becauſe of the Pain they feel there; the Nurſe in giving them ſuck, finds the Mouth hotter; they are very much changed and cry every Moment, and cannot ſleep, or but very little; and ſmall points of the Teeth may be ſeen and felt through the Gums, which appear thin and pale on the top, and Red and Inflamed on the ſides; and if it happens to be a long time ere they cut, or that too many of them cut at a time, the Pain is ſo exceſſive, that it ſometimes kills the Child.

To prevent theſe Accidents, the Nurſe muſt keep a good Diet, and uſe all things that may allay the Heat of her Milk, for fear of putting the Child in a Feaver, who already is very much in Pain; and let his Body be kept open with Clyſters if he be bound.

To help the cutting of the Teeth, let the Nurſe from time to time paſs her Finger over the Childs Gums, gently rubbing them; and give him a ſtick of Liquorice to champ, or a little end of a ſmall new Wax-candle, which is very good to ſoften the Gum; or a Silver Coral with ſmall Bells to divert him from thinking on the Pain he feels. Some Women inſtead of a Coral, put a Wolfs Tooth in. If the Gums are hard and thick, theſe things do no good; ſome Nurſes make an Inciſion with their Nail; but 'tis better done with a Lancet, becauſe that is not ſo painful, and makes no Contuſion.

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Of a Looſneſs in Children.

Children being wholly fed with Liquids, the Fibres of the Stomach are relaxed, which is apt to cauſe a perpetual Looſneſs. This often happens by reaſon of the great Pain which attends the cutting of the Teeth, and ſometimes from the ſharpneſs of the Milk which irritates the Guts.

A Looſneſs which is of no long ſtanding, and without a Feaver, is not to be accounted dangerous, but if it continue long, it will be convenient to put a ſtop to it, for fear the Child be too much weakned by it; for this purpoſe let him ſuck well purified Milk, giving but a little at a time, to the end he may the better digeſt it; give him an Infuſion of *Rhubarb*, to purge away the ill Humours; gentle Anodyne Clyſters may be likewiſe given with *Milk*, *Yelks of Eggs*, and *Honey of Roſes*; but after purging, let them be made with *Plantane Water*. You may likewiſe mix the Yelk of an Egg in the Pap he eats, rub his Belly with *Oyl of Quinces*, and lay upon his Stomach Compreſſes dipt in Red VVine, in which *Provence Roſes* have been boiled.

Of Vomitings.

Vomiting in Infants is frequently the occaſion of other Diſtempers, if it proceeds too far. It moſt commonly proceeds from their drawing more Milk than their ſmall tender Stomachs can retain and digeſt. Sometimes the badneſs of the Milk, the Nurſes dancing the Child too much, a violent Cough, or too great a Compreſſion of the Stomach, are the cauſes of this Accident; to all which the ſweetneſs and luke-warmneſs of the Milk contribute much.

VVhen the Child ſucks more than it ſhould, the Nurſe muſt not give it ſo much, and but a little at a time. If the Milk be bad, let the Nurſe be changed for a better; if the Vomiting be cauſed by a Cough, ſome proper Remedies muſt be uſed to appeaſe it; if by the dancing of the Child,

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Of Ruptures in Children.

The moſt frequent cauſes of this Accident are their vehement Crying, and violent Coughs; beſides the Moiſture and Softneſs of their Bodies does not a little contribute to this: in the laſt place too ſtrait Swathing by forcing down the Guts, often cauſes Ruptures.

This Miſchief muſt be remedied as ſoon as diſcovered, becauſe the continual deſcent of the Gut, dilates the place through which it falls every day more and more. Ruptures in Children are more eaſily cured, than in grown Perſons.

VVhilſt Children are in Swadling Clouts, the cure of true Ruptures which happen to them, muſt not be undertaken but by a Swathe-band, which is ſufficient. This is effected by a Roller, putting a Compreſs or Truſs juſt upon the Rupture, after having firſt reduced the Gut and *Omentum* into their Natural place. To do this, lay the Child with his Head low, then with both Hands reduce them by degrees, thruſting the Tumour with one Hand, and putting in the Gut with the other; after the Guts are reduced, lay a thick Compreſs on the dilated place, and Swath it in the ſame manner as was directed in the Rupture of the Groin or *Bubonocele*. Becauſe it is very difficult for a Nurſe to make this Bandage, a ſmall Truſs may be us'd in ſtead of it, which muſt be waxed to prevent being rotted by the Childs Water, and more than one muſt be had in readineſs for change. For the better curing the Child, let him be kept in Bed forty or fifty days, and care be taken to prevent his Coughing and Crying, and his Belly muſt not be compreſſed. Some foment the place with *Smith's Water*, and then lay on *Empl. ad Herniam.*

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of Wine, or a Fomentation made of a Decoction of *Camomil*, *Melilot*, *Rue*, *Marjoram*, and *Fennel*, and apply Compresses dipt in it to the part, and after this dry the *Scrotum* with a Solution of *Alum* in *Lime-Water*, and to strengthen the part, lay Compresses dipt in a Decoction of *Roses* and *Alum* in *Red Wine*.

If these Remedies are ineffectual, make an Aperture with the Lancet to evacuate the Waters.

Of Scabs upon the Head and Face of young Children.

These are seldom Malignant, and it is a mark that they are not so, when they are only superficial, moist and yellow, and when their Crust is removed, the Skin appears of a Florid red Colour, without any notable Ulceration.

The Humours must never be repelled, because the discharge they make is useful to preserve the Body from ill Distempers, and the Child ever has its Health best when they come out. However to prevent the breeding of ill Humours, take care that the Nurse be a Sound and Healthy Woman, keep the Childs Body open, and purge it now and then with a little Syrup of *Roses* or *Succory*. The crust must be digested and brought off, to give the Matter a better issue; for which purpose you may make use of fresh Butter or *Oyl of sweet Almonds*, laying on a *Cabbage* or *Beet Leaf* after, which must be renewed twice or thrice a Day, to avoid the offensive Scent, Continue the use of these Remedies till the Child be cured, ever endeavouring to procure a plentiful discharge of Matter, after which Nature will finish the rest of the Cure. In the mean time keep the Childs Hands tyed to prevent his Scratching his Face, which would inflame it more, and bring down a Flux of Humours.

Of the Small-Pox and Meazles in Children.

The Small Pox is a Disease in which abundance of small Pustles do break out all over the Body, which grow white, and after ripen. The Symptoms of the Small Pox and Meazles are so very like, that it is difficult to distinguish them on the first, second or third Day.

The Signs which precede the Eruption of the Pox are a Feaver, *Stupor*, a great Beating and Pain of the Head, Lassitude, a Pain in the Back, Sickness, Vomiting, Difficulty of Breathing, Yawning, Sneezing, Itching of the Nose,

Noſe, Inflammation of the Eyes, a general wearineſs of the whole Body, and a Urine very turbid. As for the Eruption upon the third or fourth Day, a great many ſmall Puſtules ariſe, which encreaſe in bigneſs and number till the eighth or ninth Day; at which time they grow white, and gradually ripen; and the Face and Head Swell, the Eyes are cloſed by the diſtention of the Eye-lids, the Noſe is ſtopt, the Voice grows Hoarſe, there is a dry Cough, a Pain in the Throat, and a great Difficulty of Breathing; If there be abundance of Puſtules, the whole Body is Swoln.

There is a ſort of Small Pox void of Malignity, this at firſt is attended with a Feaver, which ceaſes immediately after the Eruption, the Puſtules riſe to a point, ſuppurate kindly, and are ſoon well. The Matter is white, uniform, and well digeſted: When the Diſtemper is Malignant, the Puſtles are brown, flat, livid, or ill coloured, have little black ſpots in their middle, break out more ſlowly than when they are kind, have no Digeſtion at all, or at leaſt a very bad one, are filled with a Sanious Matter, attended with a Malignant Feaver, *Delirium*, Difficulty of Breathing, *Syncope*, and Dyſenteries; ſometimes they leave behind them Malignant Ulcers, Cariofity of the Bones, loſs of Sight, Deformity of the Face, or Lameneſs of ſome Limb.

If the Feaver be not very high, and abate in proportion to the Eruption of the Puſtles, if they be not very numerous, and grow white and ripen quickly, the Diſtemper is not very dangerous, but if the contrary happen, it is a ſign of Death. The Small Pox in Children, is not ſo dangerous as in grown Perſons, becauſe their Skin is more ſoft and Porous, ſo that they break out more kindly than in thoſe who have the Skin more compact, and the Pores not ſo open.

The Meazles are never ſo dangerous as the Small Pox, becauſe the Peccant Matter Tranſpires more eaſily and quickly. Theſe are moſt commonly over in three or four Days, after which the Pox ſometimes appears, which occaſions the one Diſtemper to be miſtaken for the other.

For the more ſucceſsful curing this Diſtemper, preſcribe the Child a good Diet, let him forbear all ſolid Meats, and feed only on Liquids; ſuch as Veal or Chicken Broth, or a little Gelly. Let him drink a Ptiſan of *French Barley*, Roots of *Dogs Graſs*, *Liquorice*, and *Raiſins of the Sun*. Never give Pap to a Sucking Child, till it be perfectly recovered,

covered, and let the Nurſe keep a cooling Diet. Do not ſuffer her to carry her Child into the open Air, but let her keep it cloſe in the Chamber, neither too hot nor too cold; for too hot an Air diſſipates the Spirits, and too cold an one ſtops the Pores, hinders Tranſpiration, and checks the Eruption. The Childs Sleep muſt be moderate, and his Belly kept open. If the Small Pox be attended with a High Feaver in the beginning, together with a Difficulty of Breathing, and other like Symptoms bleeding is neceſſary. Purging in the beginning of the ſmall Pox is not to be admitted, for fear of turning the courſe of Humours which tend toward the Skin, but after it is proper to evacuate the remaining impurities.

From time to time give the Child all ſort of Cordial and Strengthning Things, ſuch are a pure Air, good wholſom Food, Juyce *of Oranges*, Syrup *of Limons*, and *Pomgranats* in the Ptiſan, or a little Wine allay'd with Water, but if it be a ſucking Child, Milk muſt ſerve in ſtead of all other Cordials.

As ſoon as the Puſtles begin to appear, anoint them with Oyl of *ſweet Almonds*, rubbing them with a Feather dipt in it. Some uſe *Cream*, *freſh Butter*, or *Stale Lard* melted and waſhed in *Roſe-water*, and beaten up in a Marble Mortar, and with this they greaſe them till they are perfectly cured. When the Puſtles are ripe, which may be known by their Whiteneſs and Itching, which uſually is about the Ninth Day, the biggeſt of them may then be pierced (by a Gold or Silver Needle, or by cutting the tops with a pair of Sciſſors) to diſcharge the Matter, leaſt by its too long ſtay, it ulcerate and corrode the Part too deeply. Afterwards to dry them up, anoint the Face with a Liniment made of freſh *Cream*, mixed with *white Chalk*, continuing this Remedy till the Scabs be quite fallen off, uſing it Night and Morning, or make uſe of *Oyntment of Roſes*, with a little powder'd *Ceruſs* mixt with it.

To prevent the Small Pox from cauſing too great a Defluxion on the Eyes, apply cooling Remedies, as *Roſe* and *Plantane Water* from the beginning. Breaſt Milk is very good to bath the Eyes with; Let the Nurſe from time to time unſtop the Childs Noſe, that ſo he may breath with more eaſe. Give him ſometimes a little Syrup of *Violets* to ſmoothen his Throat, or give him a little Syrup of *Limons* or *Pomgranats*, but Milk alone is ſufficient for a Sucking Child.

How to cure the Venereal Pox in Children.

If the Mother have the Pox when the Child is born, it will infallibly be infected by her, and this may be eaſily diſcovered when it is ſo, by Buſtles and Ulcers in all parts of the Body, eſpecially in the Belly, Fundament, Head, and between the Leggs.

If the Nurſe who gives it Suck be Poxed, ſhe will communicate it to the Child with her Milk. In this caſe the Diſtemper firſt appears in the Childs Mouth, and the ſharpneſs of the Milk makes ſeveral Ulcers in it. But we muſt not preſently conclude the Nurſe has the Pox, becauſe the Child has Puſtles in ſeveral parts of its Body, for theſe ſometimes proceed from the Milk being over-heated, and therefore ſome other Symptoms muſt be lookt for before you can be aſſur'd of it.

There is nothing farther neceſſary for the cure of ſimple Puſtles, than changing the firſt Nurſe, and giving the Child to another whoſe Milk is ſweeter, and who will take care to keep it clean. But Children who come into the World with the Pox on them, moſt commonly die of it, and thoſe who receive it from their Nurſes, are very difficultly cured, their tender Age being unable to ſupport the Fatigue of Medicines.

If the Nurſe be Poxed, take the Child from her and give it to one who is Sound, who muſt be confined to a cooling Diet. Let the Nurſe waſh her Nipple with Wine every time ſhe gives the Child Suck, and let her Purge from time to time, for fear of being infected. If no Nurſe can be found who will venture to Suckle the Child for fear of being infected her ſelf, take one who has abundance of Milk, and let her ſqueeze her Breaſt and drop it into the Childs Mouth, or let her Milk her Breaſt into a Porringer, and give it a Spoonful now and then, or let her put her Milk into a Funnel, at the end of which there is faſten'd a Rag rowl'd up, and put this into the Childs Mouth for him to ſuck, or dip Rags in her Milk and let him ſuck them. But the beſt way is to let him ſuck a young Goat, fed on purpoſe with good Hay, and other convenient things.

Let the Child be Bled and Purged, and after if he have Strength enough, anoint him with a Mercurial Oyntment, rubbing only the Puſtles and Ulcers, in doing which and reiterating the Frictions a ſmall Flux will be raiſed by degrees, which muſt

muſt be almoſt inſenſible, leaſt the Humours being ſtirred and carried in too great abundance to the Mouth, cauſe it to Swell and Ulcerate, and hinder the Childs Sucking: Wherefore but a ſmall quantity of Mercury muſt be mixed with the Oyntment, and after one Friction or two, you muſt forbear five or ſix Days; and ſee how the Flux will riſe, and then if there be occaſion, give a few Grains of the Mercurial *Panacea* in the Childs Pap. Let the Nurſe waſh its Mouth with a Lotion of *Barley Water*, with the addition of *Honey of Roſes*, or Syrup *of Wormwood* with *White-wine*, to clear it from the froth which is uſually gathered about it, and that he may void the Drivel better, let him lie upon his Side and not upon his Back, leaſt falling upon the Stomach or upon the Lungs, it ſhould choak him. Let him be always kept warm without carrying him into the Air, and watch diligently the effects of the Medicine.

The common Way to make this Mercurial Oynment, is thus; Take half an Ounce of *Quick-ſilver*, paſs it through a Leather to clear it from its adhering Filth, and then mix it in a Mortar with four Ounces of *Hogs Greaſe*, till it be very well incorporated; then take two Drams of this Oyntment for each Friction, more or leſs in proportion to the Childs Strength.

How to chuſe a good Nurſe.

The Mother is doubtleſs the beſt Nurſe that a Child can have, if there be no reaſon to the contrary. The beſt Age for a Nurſe, is from 25 Years to 35, becauſe about that time, a Woman is ſtronger and more healthy than at any other. The common Opinion is, that a Woman is moſt fit to be a Nurſe, two or three Months after her Delivery, becauſe at that time the Milk is purified, and her Body purged by her Cleanſings, but ſhe cannot be ſo much longer, becauſe in this caſe the Milk would not continue ſo long, as would be neceſſary to ſuckle the Child. She muſt not have Miſcarryed, but had her Child at due time. The Milk of a Woman who has been Delivered of a Male Child, is commonly thought to be beſt, and it is to be preferred if it be her Second Child, becauſe ſhe may then very well be ſuppoſed to have ſome Experience in the Ordering and Managing her Infant. *Mauricean* prefers Milk of a Fortnight old, to that of three or four Months, and if it be for a Girl, he prefers a Nurſe who has a Girl, to one who has had a Boy.

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She muſt be Sound and Healthy, and born of Parents who were ſo, and never had the Stone, Gout, Kings-Evil, Falling-Sickneſs, or any other Hereditary Diſtemper. She ought to have a clear Skin free from all Scabs, Itch or Scald; ſhe ought to be ſtrong and able to watch and tend the Child as occaſion requires. It is convenient ſhe be of a middle Stature, neither too large nor too little, too lean or too fat; but above all, ſhe muſt not be with Child. Let her Complexion be Sanguine, and her Fleſh plump and firm. She muſt not have her Courſes, for that is a ſign her Blood is too hot, or ſhe is too amorous; ſhe muſt not have the Whites, for theſe are a ſign of a bad Habit, ſhe muſt not be red Haired, or markt with any Spots, but her Hair muſt be black or of a Cheſnut brown. She muſt be well ſhaped, neat in her Cloths, and handſom in her Face, having a Sprightly Eye, and Smiling Countenance; ſhe muſt have good Eyes, Sound and White Teeth, and ought to have a Sweet Voice, to ſing to and pleaſe the Child. She muſt have no ill Scent come from her, as uſually red Haired Women have, and thoſe who have black Hair and a white Skin, for their Milk is Hot, Sharp, and of an ill Taſt and Scent; She muſt not have a ſtrong Breath, as they who have a ſtinking Noſe, and bad Teeth, becauſe ſhe would infect the Childs Lungs by often drawing in the corrupted Air.

Her Breaſts ought to be pretty large to contain a ſufficient quantity of Milk; they ought to be pretty firm and plump, and not flaggy or hanging down; for a large ſtrutting Breaſt, is the Mark of a good Habit of Body. As for the Nipples they muſt be well ſhaped, not too big nor hard, nor callous, nor ſunk in, but they muſt be raiſed, and have ſeveral ſmall Holes that the Child may Suck without any great pains; ſhe muſt have Milk ſufficient, and not in too great exceſs, becauſe the Child not being able to draw it, it grows ſtale in the Breaſt, and by its long ſtay there, turns ſour and curdles; and therefore ſhe may let another Child ſuck the remainder. Her Milk muſt not be too thick nor too wateriſh, which may be known by Milking it into the Hand, and the turning it a little on one ſide, for if it run off immediately, it is a ſign it is too Fluid, but if it do not run off at all, it is too thick; the good is of a conſiſtence between both, which runs off gently in proportion to the inclining of the Hand, and leaves a Trace behind it. The whiteſt Milk is the beſt, and the farther any

recedes from that the worſe it is, it ought to have a pleaſant ſmell, and ought to be well taſted, that is, ſweet and ſugar'd without any Acrimony or Heat. But we muſt not forget one principal condition of a good Nurſe, and that is, that ſhe be an Honeſt and Conſcientious Woman, becauſe theſe qualities will make her ſober and careful of her charge, and preſerve her from Drinking and Venery.

How to prevent Childrens growing Squint-eyed, Awry, Crooked or Lame.

To prevent a Childs becoming Squint-eyed, chuſe a Nurſe whoſe Sight is firm and ſtraight, leaſt by her ill example, he get a bad Habit, Children being wondrous apt to imitate what they ſee done. Let his Cradle be ever ſo placed, that he may always have the light before him, becauſe when it is on one ſide, the Muſcles of the Eye are apt to act independently on one another. To redreſs this inconvenience, let the Child wear a Mask upon its Face with two ſmall Holes right againſt the Eyes to ſee through, which will cauſe him perceiving no light but through them to direct his Eyes that way, and by degrees quit the ill Habit he has got of looking aſide.

To prevent the Childs growing crooked, awry or lame, the Nurſe muſt ſwaddle his Body ſtrait, equally extending his Arms and Legs, and Swathing his Body ſometimes one way, ſometimes another, leſt if ſhe ſhould ſwaddle it always alike, the parts ſhould retain an ill Figure. The Nurſe muſt lay him on his Back ſtreight and not bending, and when ſhe holds him in her Arms, let her carry him ſometimes upon one, and ſometimes upon another, for holding his Legs always in the ſame Faſhion, it would be a great Hazard if they did not grow crooked, and this compreſſion eſpecially about the Knees, is the cauſe why ſo many Children have crooked Legs.

When any Parts have contracted an ill Figure from whatever cauſe it proceed, let this be remedied with Swathes and Compreſſes conveniently placed, to keep the Part in a good Poſture, whilſt the Child is in his Clouts. When he is grown a little bigger, ſmall Leather Boots may be uſed to ſtraighten the Legs; if the Foot only be awry, Shooes underlaid of one ſide higher than the other, will ſerve the turn. When the Breaſt or Back-bone are in fault, it muſt be helped if poſſible, or at leaſt hinder from growing worſe,

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by a little Bodice of ſtrong Whale-Bone very well lined on that ſide where it jets out. A Croſs made of Steel is now in uſe, the Traverſe of which paſſes over both Shoulders, and the perpendicular lengthways of the Body, this Inſtrument is very convenient, and do's not appear.

Thoſe who would ſeriouſly apply themſelves to the Practiſe of Deliveries ought to have that excellent Piece of the famous M. *Mauriceau* on this Subject ever before them, and read it Day and Night. I dare engage the intelligent Reader will perpetually find new matter in it. This is a Noble, Uſeful and Laſting Monument, from which Poſterity will reap great Advantages.

REMARKS.

Mauriceau aſſures us, He delivered a Woman of a Dead Child, which ſhe had retained in her Womb for two Months, after being ſeverely exerciſed with a Violent Cough. Tho' the Child was entirely ſtript of its Scarf-skin; yet it had not the leaſt ill Scent, being kept in this manner from all manner of Cadaverous Putrefaction. The Mother retained it to the end of the ninth Month, without any notable inconvenience(and continued in perfect good Health till after her Delivery.

The ſame Author relates, *Obſ.* 465. that on the 21*ſt* of *November*, 1636. He laid a Woman nine Months gone with Child of a Girl perfectly Sound, her Burthen appeared to be Sound, though the Mother had in the Neck of the Womb ſeveral Miliary Puſtles and Yellow Excreſcences, which undoubtedly proceeded from a Virulent *Gonorrhœa*, which her Husband probably had given her above a year before.

Obſ. 422. He relates that on the 25*th* of *January*, 1686. He happily delivered a Woman of a Male Child, the Child was ſeized with a great Defluxion on the Head, cauſed by a great quantity of cold Water which the Prieſt poured on the Mould in Baptizing him. This cold Water created ſo great an Obſtruction, that it could not breath through the Noſe, and therefore was incapable of Sucking, and obliged to quit the Breaſt, as ſoon as it had taken it into its Mouth, and this killed the Child in four days after.

Obſ. 692. He tells us a Woman Miſcatryed of a *Fœtus* wholly emaciated, which was about the length of a Mans Finger, being about three Months gone, and this was occaſioned by a great Clap of Thunder which ſurprized her.

Obſ. 488. This Author mentions a Woman who was delivered at Nine Months end of a Girl very ſound and well, though the Mother voided near a Quart of Water in one Day, above two Months before, and after voided a conſiderable quantity more at different times. He makes a queſtion whether theſe Waters were the effect of a Dropſie, or were really the Childs Waters, and concludes they could not be any other than a Dropſie, becauſe the Child had been incapable of ſuſtaining ſuch a loſs, and the Woman muſt of neceſſity have been delivered when the firſt Waters came away.

Obſ. 489. He tells us he had laid a Woman of 35 years of Age, whoſe Hymen was entire, and only perforated with a ſmall Hole, ſhe was with Child though her Husband could never break that Membrane, and enter her Body, as ſhe her ſelf aſſured him. This Example makes it evident, that a Woman may become big with Child without introducing the Yard, and that it is ſufficient that the Seed be lodged within the Neck of the Womb.

Obſ. 393. He remarks, that a Woman of ſixteen years of Age and a half was got with Child tho' ſhe never had had her Courſes.

Obſ. 20. He tells us that a Woman having had a continual Oppreſſion in the time of her going with Child, was bled four or five times in the Arm, twice in the Foot, once in the Throat, notwithſtanding which ſhe was delivered of a Healthy Child at her due time.

Obſ. 30. He tells us that a Woman of Eighteen years of Age, was happily delivered at her due time of her firſt Child who was very well, as the Mother her ſelf was, though ſhe had been bled Ninety times during her going with Child, particularly in her eighth Month 22 times in the Arm, and twice in the Foot.

Obſ. 23. He tells us that a Woman of 22 years of Age, and ſeven Months gone with Child, underwent a Salivation for the cure of a Pox; The Flux was ſo copious, that ſhe filled five or ſix Baſons every Day. This Woman was cured of her Diſtemper, and at laſt happily delivered at her due Term of a Healthy, Sound, Child, which perhaps would have died of the Pox, if the Woman had not gone through this Courſe.

Obſ. 40. He relates that a Woman having a *Prolapſus* of the Womb made uſe of a Peſſary, who was notwithſtanding got with Child, though ſhe did never take that Peſſary out.

Obſ.

Obſ. 70. He tells us that a Woman who had been Hydropical for the ſpace of nine Years, was notwithſtanding pregnant, and when her time was up, delivered of a luſty Child; the Dropſie encreaſed till the time of her Delivery, and ſhe had four Children whilſt her Diſtemper was on her, amongſt which was a Girl who appeared to be ſeven years of Age, when ſhe was really not above four and a half. After her Delivery, her Belly did not ſink more than if a Pullets Egg had been excluded, and ſhe appeared as big as if ſhe had near 30 quarts of Water in her Belly.

Obſ. 249. He relates that a Woman whoſe Belly was two Ells of *Paris* meaſure in Circumference, was notwithſtanding got with Child, and delivered ſeveral times when her time was up. This Woman in good Health weighed 110 ℔. and when ſhe had her Dropſie, 220. and yet had her Courſes very regularly. This Woman made Iſſues in her Legs, whereby all the Water of her Body being evacuated, ſhe dyed within a few days after.

Obſ. 105. He relates that a little Woman who had had ſeveral Children, when ſhe was not with Child, would often emit wind with as great a Noiſe as from the *Anus*, adding, that he had ſeen ſeveral Women who tho' with Child, have been ſubject to the ſame Accidents.

Obſ. 146. He tells us that a Woman at the end of her eighth Month, was delivered of three Children, each of which had a ſeparate Burthen, tho' the Woman was Paralitick on one ſide of her Body.

In *Obſ.* 174. He relates that a Woman having the *Nymphæ* exceſſively long, which was unpleaſing to her Husband, and incommoded her very much in Riding, by rubbing againſt each other, ſhe cut them off and loſt twelve Porringers of Blood in five or ſix hours.

In *Obſ.* 223. He mentions a Woman who ſeeing her Husband return from the Army with his Head bound up, was deprived of her Senſes by the ſudden Fright, fell into a Flooding, and was delivered of a falſe Conception.

Obſ. 245. A Woman about ſix Months gone with Child being overturned in her Coach, and exceedingly affrighted by the Accident, the Child in her Womb died, and continued there for the ſpace of a Month, notwithſtanding which it was not much corrupted, being preſerved by the Waters; for if theſe had come away, it muſt of neceſſity have putrefied.

Obſ. 246. He tells us he had ſeen an Abortive *Fœtus* of five weeks old, which though no longer than his Nail, had all its parts as perfectly formed, as one of nine Months.

Obſ. 251. He relates, that a young Woman dying after ſhe had been two days in Labour, not being able to be delivered, the Child which was very large preſenting its Head and one ſide of his Face, was opened after her Death, and the Child was found dead; and though its Head was in the paſſage, by its ſtrugling it had broke through the Womb, and thruſt the Burthen into the cavity of the Lower Belly.

Obſ. 301. He mentions a Surgeon who cutting the *Frænum* in a Child that was Tongue-tyed, opened a Vein which poured out a great quantity of Blood, and this coagulating in the Stomach killed the Infant.

Obſ. 315. He aſſures us he had ſeen a Woman eight Months and a half gone with Child, who having had a very dangerous Pleuriſie about two Months before, was ſeized with a continual Feaver and *Delirium*, of which ſhe dyed after ten days Illneſs. As ſoon as ſhe was Dead, an Inciſion was made into the Womb, and a Child taken out which lived about two Hours.

Obſ. 342. He mentions a Woman who entirely loſt her Senſes upon hearing of the Death of her Child, about five or ſix Days after her Delivery, who notwithſtanding became pregnant, and after was happily delivered of another Child, and reſtored to the uſe of her Reaſon.

Obſ. 383. He mentions a Woman of twenty years of Age who being ſuppoſed by the bigneſs of her Belly to be with Child the firſt time, and about ſix Months gone, had violent Vomitings, which after ſome time were ſtaid by the bringing up a Worm as long as a Mans Hand; after this ſhe fell into a Hectick Feaver and continual Looſneſs, with which being very much waſted ſhe died. Upon opening the Body the left Teſticle was bigger than a Mans Head, and filled the whole capacity of the lower Belly, weighing fifteen pound, and was of a very compact Subſtance, the Right Teſticle was as big as both a Mans Fiſts, containing in the midſt of it a Glairy Matter, reſembling the White of an Egg. The Womb it ſelf was no bigger than that of a Child of eight years old.

Bartholine and *Foreſtus* aſſure us, that a Woman with Child having the Small Pox, was after delivered of a Child who

who had Scars, from whence it is evident that the Mother and the Child had the Diſtemper both at the ſame time.

Amatus Luſitanus, Centur. 5. tells us that a Woman with Child having taken an Infuſion of *Saffron*, was after delivered of two Girls, whoſe whole Bodies were tinged yellow. This Accident gave occaſion to ſome *Virtuoſi*, to make the Experiment in a Bitch whoſe Whelps became all yellow.

In the *Miſcellanea Curioſa*, *Obſ.* 42. there is a Relation of a Woman in *Hungary* who being in Labour, and the *Fœtus* having his Head out, drew it back into the Womb, where it continued a Fortnight longer, and after was born without any ill Accident.

Mr. *Boyle* in his Experimental Philoſophy, relates that a Child was heard to cry in his Mothers Belly.

In the *Scholion* to the 62 *Obſ.* of the *Miſcell. Curioſa*, we are told that in the Year 1624. a Woman nine Months gone with Child, heard her Child ſigh in her Belly whilſt ſhe was at Church in the Town of *Colberg*, ſeveral Women beſides heard it, After this Child was born, its Mother and it ſelf both were poiſoned by a certain Perſon, her Husband died of the Plague, the Houſe in which ſhe lived was fired, and a great part of the Family burnt, and others loſt there Limbs, and not long after a terrible War broke out in that Country, all which Miſchiefs the People did believe, this Childs crying did Preſage.

Pliny in the third Book of his *Natural Hiſtory*, *Chap.* 3. relates that a Child being half born, retired back into his Mothers Womb. This Prodigy hapned the ſame year that *Hannibal* deſtroyed the City of *Saguntum*.

CHAP. XXV.

Of the Cæſarean *Birth.*

THIS Operation is *an Inciſion into the Belly and Womb, to take out the* Fœtus.

THE CAUSE of this Operation is the largeneſs of the *Fœtus*, which cannot paſs by the Natural and Ordinary way, or perhaps its breaking through the Womb, and ſo falling into the Belly, or the Womb inſinuating it ſelf through the Rings of the Abdominal Muſcles.

THE SIGNS. The largeneſs of a Child is eaſily known, by the Mothers Belly being exceſſively ſwelled. This may be farther evinced if putting your Hand up into the Womb, you find there is an *Hydrocephalus*. You may conclude the Womb has thruſt it ſelf through the Rings of the Muſcles, if it be not in its proper place, and you may believe the Child has forced its way into the Cavity of the Belly, if there be nothing in the Womb, and you have certain indications of the Womans being with Child.

The OPERATION.

Place the Woman on her Back, and then make a longitudinal Inciſion below the Navel, and on one ſide the *Linea Alba*, and cut through the Teguments till you lay the Womb bare; Be ſure to make the Inciſion large enough to extract the *Fœtus*, and when this is done make an Inciſion through the Body, and on one ſide the Womb put the fore-finger of the left Hand into the Inciſion to widen it, and guide the Point of the Sciſſars or Knife on the Finger, to prevent hurting the Child; then open the Membranes which contain the *Fœtus*, and bring both it and the Burthen away, after having dextrouſly diſingaged it. Wipe the Blood off the Wound with a Spunge dipt in Wine warmed, and make a Suture of the Belly, as in its proper place was directed, without ſtitching the Womb at all.

THE DRESSING is the ſame as in the *Gaſtroraphia*. Put a Peſſary into the *Vagina*, for the more eaſie evacuating the Blood and Cleanſings, and making Injections into the Womb,

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THE CURE. Dreſs the Wound once a Day with ſome good Balſam till it be cicatrized, and let the Motion of the Belly be checked with ſuch Inſtruments, as were deſcribed in the Operation of ſtitching the Belly.

REMARKS.

In the *Journal des Scavans*, there is a Relation of a Woman of *Chateau Thierry*, who ſome years before being ready to lie in, called in the Surgeon of the Place, who ſeeing her caſe very bad, undertook to make the Cæſarean Section. The Mother was ſix Months under Cure, and the Child lived 13 Months. The Woman ſometime after her Cure had a *Hernia Ventralis*, which encreaſed to a great ſize, ſhe ſupported this Rupture with a Bandage hanging from her Shoulders, but the Pain encreaſing with the Swelling, and this at laſt Ulcerating, forced her to ſeek for a Cure in the *Hôtel Dieu*, where ſhe remained three Months, in which time the Rupture roſe ſo high, that it ſuffocated her. Mr. *Saviard* who was then Surgeon in that Hoſpital opened the Body, found the *Peritoneum* connected to the *Omentum* and ſmall Guts by ſeveral Membranous ties, and the *Ileum* and *Jejunum* contained in the Swelling. He found a *Cicatrix* in the Womb within and without, with ſome Membranous Skirts on the *Cicatrix* within.

Sennertus relates, that a Woman bending a Stick for the Hooping of a Tub, one end ſprung back and hitting her a blow on the Groin, broke the Muſcle of the *Peritoneum*, by which means the Womb inſinuated it ſelf into the Groin in ſuch manner, that it could not be reduced into its Natural Place. The Woman became Pregnant, and the Womb with the *Fœtus* in it hung between her Thighs, and there was no poſſible way to deliver her without making an Inciſion, When the Operation was over, the Womb could not be reduced into its Natural place, but the Skin was brought over ſo as to cover it, and ſo it was Stitched. The Womb leſſened by degrees till it came to its Natural ſize, but the Woman after ſome time hapning to do ſome work, the Wound gangrened and killed her.

CHAP.

CHAP. XXVI.

Of a Polypus.

THIS Operation is *the Extraction of a Carnous excreſcence in the Noſe.*

THE CAUSE. A *Polypus* is a carnous excreſcence formed in the cavity of the Noſe. For the better underſtanding the cauſe whence this proceeds, we muſt conſider that the internal Membrane of the Noſe is very thick, ſpungy, and abounds with a Viſcid, Glutinous Humour, and that its Pores are ſo diſpoſed, as to admit the groſs and terreſtrial parts of the Blood to paſs, and from the comparing theſe cauſes, it will not be difficult to conceive the manner how theſe Excreſcences grow. For by the encreaſing Heat of the Blood, and the Rapidity of its Motion, the leſs viſcid parts exhale, and the reſt is condenſed into a hard Subſtance, and when this is once formed being detained in the Membrane, it extends the Veſſels, tumefies the Glands, and by the acceſſion of new Matter, a Fungous Carcinomatous Maſs is engendred.

The *Polypus* ſometimes proceeds from an acrid *Lympha*, which corrodes the Glands and the *Tubuli* of the internal Membrane of the Noſe, and the Nutricious Juyce emptying it ſelf there, is coagulated round the Orifice, and this concreted Lump is called a *Polypus*, though ſometimes it is only a Maſs of tumefied Glands which cohere together. The great Agent in this, is the Acidity of the Humours which is the general cauſe of all Corroſion and Coagulation in Animal Bodies.

THE SIGNS of a *Polypus* are manifeſt, *viz.* a Carnous Excreſcence, which ſometimes comes out of the Noſe, and at other times hangs down the Throat, hindring Reſpiration, and ſometimes occaſioning great Fluxes of Blood.

Some *Polypus* are Schirrous, others Painful, and apt to degenerate into Cancerous Ulcers; which laſt are moſt commonly the effect of ſome Venereal Diſtempers too long neglected; ſome are ſoft and of a White or Red Colour. Theſe latter moſt commonly do not adhere ſo firmly, and by conſequence are cured with leſs difficulty.

All

All Tumours in the Noſe muſt not preſently be pronounced to be *Polypus's*, for ſometimes they are only attendants of an *Ozæna*, which is an inveterate, ſordid, ſtinking Ulcer of the Noſe, which emits an acrimonious ill coloured Matter, and cauſes great Pain by its exceſſive ſharpneſs, corroding the internal Membrane like an *Aqua-fortis*. This Ulcer is covered with a large, moiſt Cruſt, from which a thick fœtid Matter diſtils and makes the Breath ſtink, infecting thoſe who come near it.

This Ulcer like all others, proceeds from an Acrimony of the Humours by which it corrodes the Membrane of the Noſe.

If a *Polypus* be not treated Skilfully, it degenerates very often into a *Cancer*.

There are ſome *Polypus's* which fill the Noſtrils, and when this happens, the Noſe becomes hard and Schirrous, and the Patient cannot breath through the Mouth without blowing.

If both Noſtrils be ſtopt, the Diſeaſe is incurable. If the Excreſcence be hard, of a livid colour, painful, or adhere to the Bony *Lamellæ* of the Noſe, or be Cancerous, all tampring with it, in ſtead of appeaſing, will exaſperate it. But if it be of a Fleſhy Subſtance, Whitiſh or Red colour, and void of Pain, it may ſuffer the Operation.

The OPERATION.

This is done with a *Forceps*, which is to be introduced into the Noſe, that ſo taking hold of the *Polypus*, and turning the Inſtrument one way and another, you may pull it out by the Roots.

If the Excreſcence be ſo large as to hang out of the Noſe into the Mouth, you muſt extract it with the *Forceps* through the Mouth. This is the way that a *Polypus* ought to be extracted, as often as it can be practiſed, becauſe by this means it is moſt eaſily eradicated.

The Ancients conſumed *Polypus's* quite to the Roots, with Potential or Actual Cauteries conveyed into the Noſe by a *Cannula*; but theſe ways are grown obſolete, though they may have their uſe when the *Polypus* has a large Baſis, and adheres firmly, for in this caſe it would be impoſſible to bring it away with the *Forceps*.

THE DRESSING. If a Hæmorrhage enſue, ſtop it with

a Tent arm'd with aſtringent Powders, or Syringe the Noſe with ſome Styptick Water.

THE CURE. If the leaſt Roots of the *Polypus* remain, a new one will infallibly ariſe, and therefore Suppuration muſt be encouraged to conſume them, and *Savin* or ſome other powders us'd if that be not ſufficient. But obſerve here not to apply Cauſticks without neceſſity to the *Septum* of the Noſtrils, and to lay ſome Tent on to defend thoſe parts, which you would have remain untouchr.

Since *Polypus's* moſt commonly ariſe from the ſharpneſs of the Blood, it is evident a good Diet muſt be kept to ſweeten it. To this end, let the Patient abſtain from all Acid, Salt, or Pepper'd Meats; let him drink a Ptiſan made of Barley, and other Vulnerary Ingredients; give him Alkali's and Sudorificks, as *Powder of Vipers*, from ℈i. *to* ʒß, *Diaphoretick Antimony* to the ſame quantity, *Blood of a Stag*, from ℈ß. upwards, which may be taken ſeparately, or more of them together, to the quantity of ʒß. *or* ℈ij. in a Glaſs of *Carduus Water*. *Millepedes* dried in an Oven and powder'd, are a very good *Alkali*, and may be given in a Ptiſan. Apozems of *Guajacum*, *Salſa Parilla* and *China* are good Sudorificks, but when the Patient takes any of theſe Medicines, he muſt keep his Bed and Sweat. Theſe Remedies muſt be frequently repeated for the more effectual ſweetning of the Blood.

Of Ulcers in the Noſe.

Though theſe are not *Polypus's*, yet it ſeems very proper to refer them to this place. Theſe Ulcers are very difficultly cured, all Mercurial Medicines are good in theſe caſes, which may be taken from 15 to 30 or 40 grains in *Conſerve of Roſes*, and muſt be continued from a long time, Sudorificks likewiſe are good. In ſhort theſe Ulcers muſt be treated in the ſame manner as Venereal ones.

If theſe Ulcers are Scorbutick, you may make uſe of the following Liniment. ℞. *Crabs Eyes*, *Sperma Ceti*, ā ℈ß. *Cinnabar*, gr. 6. *Sugar of Lead*, gr. i. *Camphire*, gr. iij. *mix theſe with a ſufficient quantity of Balſam* of *Peru*. Or you may uſe the following Injection if you pleaſe, ℞. *Hydromel*, ʒi. *Juyce of St. Johns wort*, *Wormwood*, *Smallage*, *Spirit of Feverfew*, ā. ʒi. *Myrrh* and *Camphire*, ā. ℈i. If the Bone of the Noſe be cariqus, apply the actual Cautery.

Fumi-

Fumigations of *Frankincenſe*, *Amber* and the Gums are uſeful in theſe caſes.

REMARKS.

Riverius in his communicated Obſervations, *Obſ.* 24. tells us, he had cured a *Polypus* in this manner: In the firſt place he preſcribed an exact Regimen, and purged the Patient, and after that he made uſe of the following Liniment; ℞. *Pomgranat peels*, *Galls*, ā ℥iß. *Savin Tops*, ℥ij. *burnt* Chalcitis, ℥iß. *Burnt Alum*, ℈iv. *mix theſe with Ægyptiacum, and apply the Mixture to the Tumour.* During the time of Cure, he frequently rubb'd the Neighbouring parts with an Unguent made of *Bole* and *Litharge*, with the Addition of *Amber*.

Sometimes large Worms have been voided by Ulcers of the Noſe. *Kerkringius* in his Obſervations relates, that a Woman had for a long time been troubled with a Difficulty of Breathing, a Violent Cough and Pain in her Head, but at laſt in blowing her Noſe, ſhe voided a long Worm with a multitude of Feet, a forked Tail, and Horns on its Head, it was very lively, and ſtirred much about. The ſame Woman voided another of a greeniſh Colour, and a like Figure. He adds, he kept this Worm for a conſiderable time, and that it generated another little one it ſelf.

CHAP. XXVII.

Of Amputation.

THIS Operation is *the Extirpation of a Member, when there is ſome Gangrene, Mortification or Fracture, and the Bone is very much ſhatter'd.*

THE CAUSE. The difference between a Gangrene and *Sphacelus*, or Mortification, is that one is incipient only, and the other is compleat.

Theſe Accidents ariſe from a defect in the due diſtribution of the Blood and Spirits to the Part. Inflammations of a part ill treated, and the Application of Emplaſters hinder Tranſpiration, and by conſequence the Blood Stagnating

ting corrupts, and the part Mortifies, which at firſt is only a Gangrene, but after becomes a *Sphacelus*.

When there is an interruption in the Motion of the Heart, the Blood do's not duely circulate, and the Spirits not being diſtributed to the Extreme parts, they become chill, the Face grows pale or livid, and the Limbs loſe their Senſe and Motion. On the contrary, as ſoon as the Heart recovers its Motion, the Blood freely circulates through the Parts, and they are reſtored to their Senſe, Motion, and Natural Colour. From all which it is moſt evident, that the Life of an Animal conſiſts in the free Circulation of the Blood through every part, and the Mortification occaſioned by exceſſive Cold, or ſtrict Ligature in Fractures of the Bones, which ſtop its Motion are demonſtrative proofs which confirm this Aſſertion.

Gangrenes ſometimes proceed from Obſtructions of the Nerves, becauſe for want of a free ſupply of Spirits, the Parts loſe their Senſe and Motion, and by conſequence the Influx of the Blood ceaſes; This is clear in Paralytick Perſons, in whom the parts affected ever gangrene firſt. From which I infer, that the cauſes of Gangrenes are a deficience of Blood and Spirits, ariſing from ſome coagulation of this Vital Liquour, or other impediment in its Circulation.

This is illuſtrated by comparing the Blood with any Vinous Liquour. For all Wines whilſt they retain their Spirits continue to be potable, and preſerve an eaſie and gentle Fermentation; but when once the Spirits are exhaled, and the acid parts prevail over the reſt, they loſe their ſweet and pleaſant Taſt, become eager and ſour, and ſometimes only a dead inſipid Phlegm. How much the Spirituous parts conduce to the good Temper of the Maſs, is evident in the diſtillation of Wine; for when the Spirituous Parts are drawn off, the remainder is a mere nauſeous and uſeleſs Phlegm. It happens juſt after the ſame manner in the Blood of Animals; for when the Spirituous Parts are loſt, the reſt becomes a heavy unactive Maſs, bereaved of that principle which ſhould preſerve a gentle Fermentation in it.

When any part ſuffers by intenſe Cold, eſpecially the Extremities, the Circulation is intercepted, by reaſon of the conſtriction of the ſmall Veſſels, and when the quantity of the Blood imported is ſo very ſmall, the parts muſt needs ſuffer

ſuffer a Diminution of their Senſe and Motion, and by conſequence Gangrene.

Men who die of exceſſive Age, are moſt commonly ſeized with a Gangrene, becauſe their Blood loſes all its Spirits, which are the true *Humidum Radicale*; and for the ſame reaſon Mortifications happen after Exceſſive Labour, Looſneſſes of a long continuance, or long Faſting, in ſhort, whatever waſts the Spirits.

Gangrenes often ſeize the Feet and *Scrotum* of Hydropical Perſons, becauſe their Blood is ſerous and wants Spirits, and there is leſs Heat in the extreme parts, beſides the Seroſities compreſſing the Channels which Nature has formed for the conveying of the Blood to all parts of the Body, muſt neceſſarily intercept its Motion.

The aptneſs of parts which ſuffer by extreme cold to gangrene, proceeds as well from a concentration of the Spirits, as an obſtruction in the Motion of the Blood, which is plain by the inſtance of a Bottle of Wine, which if it be expoſed to the Air in a vehement Froſt, the Watry and more groſs unactive parts will be frozen all round, and the more Spirituous and Fine ones remain liquid in the Center, nor can it be imagined but exceſſive Cold muſt have a like effect on Animal Bodies.

The Back and Buttocks of Perſons who are forced to keep their Beds for a long time often gangrene, and this ariſes from a Compreſſion of the Veſſels, which not conveying Blood enough, and by conſequence the Part wanting a due ſupply to animate it, muſt neceſſarily grow cold and mortifie.

Great Inflammations, Contuſions and Aneuriſms, (eſpecially if there be Blood ſpilt in the interſtices of the Fibres) very often terminate in a Gangrene, and this is not difficult to account for, becauſe the Extravaſated Blood putrefying, muſt neceſſarily compreſs the ſmall Chanels, and intercept the Motion of the reſt, and it is evident that this is ſo, becauſe the Pulſation ceaſes in proportion as the Gangrene encreaſes, and the part loſing its Natural colour, becomes pale or livid.

When Oleous, Greaſy, or Aſtringent Medicines are applied to Inflammations or *Eryſipelas's*, they moſt commonly gangrene, becauſe the Oyly parts ſtop the Pores and hinder Tranſpiration, and there being a continual congeſtion of Matter in the part which cannot be diſcharged, it muſt neceſſarily compreſs the Veſſels, and hinder the influx of the Blood

Blood and Spirits. The Miſchief of Aſtringent Medicines, proceeds from the ſame reaſon, and in the Hot Countries where the Pores are more open, Gangrenes do not ſo frequently happen after Inflammations, as in colder Climates.

Gangrenes after an Inflammation, are more apt to ſeize on ſoft and ſpungy parts, as the Gums, Lips, Genitals or Brain, than on the ſolid, which do not imbibe ſo great a quantity of Humours.

Gangrenes ſometimes enſue on Ulcers, Wounds, Scorbutick Spots, or ſharp or corroſive Medicines, becauſe theſe being attended with Pain, an Inflammation of neceſſity muſt follow.

Carbuncles moſt commonly Mortifie, becauſe they proceed from exceſſive ſharp Humours, which like an *Aqua-fortis* corrode the Veſſels and the Parts. In the laſt place, when the Humours of the Body grow ſharp and corroſive, they frequently leave a Mortification behind them, as we ſee happen in Malignant Feavers, in the Small Pox, and many other Diſtempers where the Humours are very much corrupted.

THE SIGNS. In Gangrenes which ſeize ſuperannuated Perſons, ariſing from a deficience of Spirits, there is no ſenſible Heat or Inflammation, the Part withers, loſes its Senſe and Motion, and the Perſon dies gradually.

When a Gangrene follows on a Dropſie, the Pain at firſt is very ſlight; but afterwards the Leggs are inflamed, and it encreaſes. When a Gangrene proceeds from external Cold, the Pain is very acute; at firſt the Part becomes red, livid, and afterwards black, the Spirits abandon it, and a Mortification enſues with a ſhivering Fit, not unlike that intermitting Feaver. If the Gangrene proceed from Compreſſion, Ligature, Tumours, or Luxations, or Fractures, or long lying on the Back, there is a Stupor, and a perfect privation of Senſe and Motion.

If a Gangrene follows an Inflammation, the Pain and Pulſation ceaſe, the Part becomes of a pale red or violet colour; there are a great many *Veſiculæ* or ſmall Blebs ariſe on the Surface of the Skin, which are filled with a Salt Muddy Water, the Natural Heat is extinguiſhed, and the Part becomes ſoft and flabby, and retains the impreſſion of the Finger. If the Mortification be perfected, the Patient falls into a great *Languor*, attended with a Burning and Malignant Feaver, Vomiting, and other Symptoms which plainly diſcover Death is not far off. Theſe Accidents

happen

happen upon the applying, Repelling and Emplaſtick Medicines.

When a Gangrene happens upon the uſe of an Actual Cautery, or other Cauſtick Medicines the Part is benummed, and loſes its Senſe and Motion. When it proceeds from any Malignant Matter, as in the Bites of Venomous Creatures, there is a Mortification of the part, a Feaver, Vomiting, *Delirium* and *Syncope*.

The Signs of a *Sphacelus* or perfect Mortification, are a heavineſs in the Part, Blackneſs, Stench, the Fleſh is flabby, has no Senſe, the Skin ſeparates from it, and it grows dry. Sometimes a part which is perfectly Mortified, does not preſently loſe its Motion, which proceeds not ſo much from it ſelf, as the Muſcles which move it being fixed to a ſound part. There are ſome Puſtules which ariſe on the Skin, becauſe when the Blood Stagnates in the part, there comes a ſharp corroſive *Serum* from it, which inſinuating it ſelf under the Skin, ſeparates it, raiſes it, and forms theſe ſmall Eruptions. There is no Pulſation in the Part, and it becomes pale and livid, becauſe the Circulation of the Blood in the Part ceaſes, and being extravaſated it putrefies. The Pains proceed from the irritation of the Membranes and Nervous Fibres by the corroſive *Serum*, and they ceaſe when the load of extravaſated Matter preſſes on the Nerves, and intercepts the Motion of the Spirits through their proper Channels. The great quantity of Seroſities which moiſten the Fibres, make the Part ſoft and flabby; add to this, that upon a Ceſſation of the Influx of the Blood and Spirits, the Parts muſt neceſſarily be relaxed.

The Acids which corrode and deſtroy the Neighbouring parts, aſſiſt the Mortification in its progreſs. If an Ulcer mortifie (beſides the forementioned Signs) it emits no Matter, or at leaſt what it do's is ill colour'd, and has a Stench.

A *Sphacelus* is incurable, except by an exciſion of the Mortified part. A Gangrene or Mortification ariſing from an internal Cauſe is curable, becauſe though you ſhould extirpate the part, the Gangrene would be reproduced in another. Fleſhy parts replete with Blood are more eaſily reſtor'd than any others, on the contrary Nervous parts are more apt to Gangrene, and cured with more difficulty.

A Gangrene proceeding from an external cauſe, muſt be cured with all ſpeed, and prevented from ſpreading it ſelf. That which ſiezes Superannuated Men and Hydropical Perſons

ſons is incurable, and the Amputation of the Member would be altogether uſeleſs.

A Gangrene in the ſoft internal Parts, is very apt to Sphacelate.

Gangrenes are much ſooner cured in young than in old Perſons, and in Robuſt, than in weak Men. Thoſe which proceed from intenſe Cold, and ſeize the extreme parts only are curable, provided the part be not Mortified.

Gangrenes occaſioned by great Inflammations, Tumours, Fractures, Luxations, Contuſions, Aneuriſms, *Eryſipelas's*, Ulcers, Burns, Scorbutick Spots, Bites of Venomous Animals, Application of Unctuous Medicines, Cauſticks, Actual Cauteries or Compreſſion may be cured in the beginning.

The Operation muſt not be undertaken on ſlight occaſions, and a Surgeon muſt conſider well whether there be a probability of Succeſs; for inſtance, if the Mortification be on the upper part of the Thigh, it would not be adviſable to meddle with it at all, becauſe it is too near the large Veſſels, and Parts neceſſary to Life. It would not be proper to perform it when there is a High Feaver, with Vomiting and a *Syncope*, becauſe theſe are Mortal Symptoms, but it may be practiſed in Cariofities and *Fiſtula's* of long ſtanding in the Joynts, or when the Bone is entirely broke, and the Splinters run into the Fleſh and Tendons, and prick ſome Nerves or Blood-Veſſels, and cannot eaſily be reduced to their Natural place; but if they can be reduced, and the Inflammation be not very conſiderable, forbear Amputation.

Complicate Wounds are difficultly cured, and eſpecially in ill Subjects, and there is great reaſon to fear Pain and Inflammation, which are often attended with bad conſequences.

When Cariofities and *Fiſtula's* ariſe from any Hurt, Contuſions, or cruſhing of the Parts, whilſt they are recent, do not affect the Joynts, and the Humour which produces them is void of all Malignity; you muſt try to cure them by Medicines, and not proceed to an Amputation of the Part preſently.

But if the Diſtemper proceed from ſome Scrophulous Humour, or ſome Abſceſs or Ulcer which is the *Criſis* of the Feaver or an Univerſal Corruption of the Blood, or if they are of long ſtanding in the Joynt, or the Cariofity, Pain and Inflamma-

Inflammation are very conſiderable, and the part diſabled from performing its Natural Functions, it muſt be extirpated if the Patients has ſtrength enough to undergo the Operation. But before you proceed to it, let the Blood be prepared and ſweetned by general Remedies, Sudorificks and Cordials.

The OPERATION.

A Limb muſt never be cut off in the Joint, without a Viſible neceſſity for it.

The Leg muſt be cut off as near the Knee as is poſſible, though the Mortification ſpread no farther than the Foot, for the more commodious carrying a Wooden Legg. The moſt proper place for this purpoſe, is about four fingers breadth below the Joynt, preciſely beneath the Termination of the Tendons which cover the *Rotula*. On the contrary cut as little as may be off the Arm, becauſe it ſerves as an Ornament and Counterpoiſe to the Body, and an Artificial Hand may be made to be uſeful in ſome caſes. Cut off as little of the Thigh as is poſſible, that the Digeſtion of the Wound may be made in a ſhorter time, and the Patient have ſtrength enough to undergo the Cure.

To cut off the Legg, let the Patient ſit in a Chair or on the ſide of his Bed, and let one Servant hold him behind, and another ſtand before to hold his Leg, then draw the Skin below the Knees up, that ſo it may the more eaſily cover the Bone after the Operation is over. Then make two Ligatures, one above the Knee, which you muſt ſtraiten with the Turnſtick or *Tourniquet*, and the other above it. The firſt Ligature ſerves to compreſs the Veſſels, ſtop the Flux of Blood, and take off the Senſe of the Part. Theſe Ligatures muſt be made on a thick Compreſs laid along the Ham, and before you ſtraiten the Ligature above the Knee with the Stick, you muſt lay a ſmall Paſt-board under it, to hinder it from pinching the Skin, and being painful to the Patient. This way is very uſeful to command the Blood, and let out as little or much of it as you judge convenient after the Amputation. The Ligature below the Knee ſerves to keep the Fleſh ſteddy, and ought to be placed at leaſt four fingers breadth below the Joynt.

When the Knee is ſteddy, let the Surgeon place himſelf between the Patients Leggs, and with a crooked Knife make an Inciſion around quite to the Bone, and to do it better,

let him make it with his right Hand, reſting his Left on the Back of the Knife, which for this reaſon muſt not have an edge there; Let him ſcrape off the *Perioſteum* with a ſlender ſtraight Knife, and cut the Fleſh between the Bones with it, leaſt if he tear them with the Saw, he cauſe ſome farther Accidents.

Before you ſaw the Bone, take a Fillet and ſlit it lengthways to the middle, then put the two ends on the Fleſh which is cut, and draw it up to make way for the Saw, and then ſaw the Bone as near the Fleſh as poſſibly you can, for this ſhrinking and waſting in the Digeſtion, without this way of prevention would remain uncovered, and create the Patient abundance of Trouble.

Let the Surgeon take the Leg in his left Hand, and the Saw in his Right, and fix it at once on both Bones, and then begin with the leſſer Focil and end with the greater, for if he ſhould begin with the *Tibia* firſt, the other would not be able to ſuſtain the Saw, but moving to and fro would tear the Fleſh; Let the Saw at firſt be a little inclined and ſaw gently, but after faſter. Whilſt the Surgeon Saws the Bones, let a Servant who holds the Leg by the Foot bend it, and bring it a little againſt the Saw to facilitate its Paſſage. When the Bones are ſawed through, take off the Ligature which kept the Fleſh ſteddy below the Knee, and looſen the Stick, and let ſuch a quantity of Blood out as you judge the Patients Strength can bear, and then ſtop it by the Dreſſings.

THE DRESSINGS looſen the Turniket a little, that ſo you may diſcover the Orifices of the Arteries, and then lay a Vitriol Button on them; Let one of the Aſſiſtants keep theſe Buttons on, as well as the dry Pledgits laid on the Bone, whilſt you cover them with a great Pledgit of Tow armed with Aſtringent Powders, as *Bole Armoniack*, Terra Sigillata, *Dragons Blood*, *Frankincenſe*, and a Thouſand ſuch like things; lay this in the Palm of your Hand, and at once apply it on the Stump. Some cover this with a large Hogs bladder armed with Styptick Medicines, and lay over all a Compreſs cut in form of a Croſs, applying its middle or plain part on the Stump, and its ends on the Legg. Next there muſt be three Compreſſes applied which muſt be of a competent breadth, and about the third part of an Ell in length, or proportioned to the Part, one of theſe is to be laid to the Hamm, and ſo brought over the Stump, and appplied to the Knee, the middle of the Second is to be applied to the Stump, and ſo diſpos'd as to croſs the other, and the third to be laid on the extremity of the Stump, making a turn round the Leg.

To

To keep the Dreſſings on, take a Roller of three Ells in breadth, and more than two Inches broad, rolled up at one end, apply it firſt to the edge of the Stump, and make two turns about it, and then mount to the Knee aſcending ſpirally, and pin it where it ends without binding the Knee, but whether this be above or below the Knee, it matters not very much.

When you have done this, take another Roller of more than two Inches broad and four Ells long, rolled up at both ends, and applying the midſt of the Roller on the center of the Stump, bring both Heads up to the Knee, and make a turn round the part with one Head to ſtay the other, which you muſt bring ſtrait down and ſo over the Wound, then bring it up and with the other Head make a round to keep it firm and ſteddy, and thus you muſt continue to do till the Stump be covered, ſtill keeping one end above the Knee to make ſeveral Rounds, for the keeping the other ſteddy, but when the ſtump is covered, make ſeveral Rounds about the Part, with the Heads alternately to keep the aſcending and deſcending turns ſteady, and in the laſt place pin them above the Knee.

Some Practitioners prefer a Ligature of the Arteries to the Vitriol Button, for ſtopping the Blood. If you would practiſe this way, you may proceed in this manner. Looſen the Turniket to diſcover the place whence the Blood iſſues, and when you have found this take hold of them with a *Forceps* made with a little Ring to riſe and fall, for the holding them firm at pleaſure. This ſort of *Forceps* is very convenient for apprehending the Artery, and when you have hold of it, take a crooked Needle with a wax Thread, and having paſſed it into the Fleſh below the Artery, with the two ends tie the Veſſel, and then laying a ſmall Compreſs waxed on it, faſten it by two other knots; when you have done this looſen the Turniket to ſee if there be any other Arteries, and if there be, tie them in the ſame manner as the firſt. After the Ligatures are all made, take off the Turniket, and bring the Fleſh as far as you can to cover the Stump, and proceed to dreſs it as is above directed, omitting the Vitriol Buttons and other Stypticks, which are not neceſſary, except ſome little Artery, (as moſt commonly it does) happen to bleed, and in this caſe you may apply ſome ſlight Styptick.

THE CURE. When the Operation is over, let the Patient be laid down, and let the Part be kept ſupported on a

Pillow. If Vitriol Buttons have been applied, and no Ligature made on the Veſſels, the Hand muſt be kept on the Stump the firſt Day for the better applying Medicines, and preventing a Flux of Blood. But in caſe Ligatures be made, this is needleſs, at leaſt it is not neceſſary to continue the Hand on for ſo long a time.

Some uſe the Actual Cautery to ſtop the Blood, but in this way when the Eſcar ſeparates the Arteries open and pour out Blood afreſh, which often occaſions the loſs of the Patients Life.

If the Blood be ſtopped with Vitriol Buttons, the Dreſſings muſt not be taken off till two Days after the Amputation, that the Stypticks which are applied, may have time enough to cloſe the Veſſels (whereas on the contrary if a Ligature be made, the Dreſſings may be taken off the firſt day, without danger of a Hæmorrhage) and the Second Dreſſing muſt be made in the ſame manner as the firſt, omitting the Hogs Bladder and Vitriol Buttons, and only ſtrewing on Aſtringent Powders. The Dreſſings muſt be removed as gently as may be, for fear of exciting a Hæmorrhage. When you are once ſecure from any Flux of Blood, it is then time to remove the Dreſſings, and endeavour to procure a good Digeſtion with *Turpentine* and *Yelks of Eggs*, and when you have obtained that, deterge with *Ægyptiacum*, or *Unguent de Apio*, and Cicatrize the Wound, keeping a Pledgit of dry Lint on the Bone during the whole Cure.

When the Digeſtion is over, lay Compreſſes on the ſtump to preſs the Part, and hinder the Growth of Superfluous and Luxuriant Fleſh, which uſually happens at that time.

When the Part is convulſed after the Operation, as ſometimes it is from the vehemence of the Pain, and the Hurry and Diſorder of the Spirits, let not the Artiſt loſe time by endeavouring to make a Ligature on the Arteries, but let him immediately apply the Vitriol Button to the Part, and Pledgits dipt in ſome Styptick Water.

This is *Fabricius Hildanus's* Proceſs in Amputations. In the firſt place he do's not remove the Dreſſings till the third Day, unleſs the Pain be very urgent, but he embrocates the remaining Stumps of the Limb twice a Day, with a Mixture of *Oyl of Roſes* and *Myrtlis*, laying Defenſatives on the Neighbouring Parts. After the Second Dreſſing when he is ſecure from any Hæmorrhage, he lays aſide Aſtringents, and applies the following, or ſome like Digeſtive.

℞. *Tur-*

℞. *Turpentine waſhed in Plantane Water*, ℥iij. *Oyl of Roſes and ſweet Almonds*, ā. ℥i. *Gum Elemi diſſolved and ſtrained*, ℥ß. *Saffron*, ℈i. *Mix theſe Ingredients, and with the Addition of the Yolk of an Egg make a Liniment.* This he continues till he has obtained a good Digeſtion, and then he deterges with the following Liniment, or ſomething of the like Nature. ℞. *Turpentine waſhed in Wine*, ℥iij. *Powders of round Birthwort*, the *Florentine* Iris, *Flour of Barley*, ā. ℥iv. *Honey of Roſes*, ℥i. *Spirit of Wine*, ℥ß. *the beſt Venice Treacle*, ℥ij. Mix theſe Ingredients, and make a Liniment.

When the Wound is deterged, he draws down the Skin and Fleſh to cover the Bone, and applies an Agglutinating Emplaſter on the Stump. This he makes after this or the like manner. ℞. *Fine Flour*, ℥i. *Maſtich*, *Frankincenſe*. *Dragons Blood*, *Powder of Roſes*, *Gum Tragacanth*, ā. ℥ij. Beat up all in a very fine Powder with the *White of an Egg*, and as much *Oyl of Roſes* as will bring it to the conſiſtence of *Honey*; and the next Day if the Medicine be too thick, put ſome *Roſe* and *Plantane Water* into it to bring it to a juſt Conſiſtence. When he finds it expedient to dry the Wound, he ſtrews Powder of round *Birthworth*, *Sowbread*, Iris Florentina, *Bark of Pine*, *Guajacum Wood*, ā. ℥ß. and when the Agglutinative Emplaſter falls off, he applies another.

During the whole Cure, he is careful not to ſuffer any Oyly thing to touch the Bone, uſing the Actual Cautery to it to procure Exfoliation, but withal, being careful not to touch the Marrow for fear of Inflamination, and defending the Bone with dry Lint, till Nature has inveſted it with Fleſh. If any Fleſhy Excreſcence happens to ariſe, he conſumes it with a Mixture compos'd of *Burnt Alum*, ℥ij. Lapis Calaminaris, Calx of *Lead*, *Cerate*, ā. ℥i. *Calcined Vitriol*, ℥ß. reduced into a very fine Powder. In the laſt place, he cicatrizes the Wound with *Emplaſtr. de Palmite de Ceruſſa cocta*, the red Deſiccative Unguent, or other like Medicines.

REMARKS.

Some time ſince a young Man in the *Hôtel Dieu* had his Legg cut off, upon the account of a fierce Gangrene on it, but the Wound it ſelf gangren'd again, and the Surgeons were forced to cut off the Thigh. At firſt he ſeemed to

do well, but ſoon after a large hard Swelling aroſe on the upper part of the Thigh, which extended quite to the Groin, this in ſome ſmall time gangrened, and killed the Patient. This Obſervation ſhews, that internal Gangrenes are incurable, and that it is not enough to take care of Dreſſing the Part outwardly, but great regard muſt be had to the Blood to ſweeten that, which ſometimes is as ſharp and corroſive as an *Aqua-fortis*.

CHAP. XXVIII.

Of the Paronychia *or* Whitlow.

THE Operation in *Paronychia's*, is an *Apertion of the extremity of the Finger to let out the* Pus, *which ſometimes is lodged under the* Perioſteum.

THE CAUSE. A *Paronychia* is a Tumour at the extremity of the Finger, and Root of the Nails on the third Joynt, though ſometimes it is found on others.

There are two ſorts of *Paronychia's*; in the one the Matter is between the Bone and *Perioſteum*; and in the other between the Muſcles; and both commonly proceed from a ſharp corroſive Humour.

THE SIGNS. When a *Paronychia* is lodged under the *Perioſteum*, there is a burning Heat, a ſharp Pain, a Pulſation within the Part, a great Tenſion, and an Acute Feaver. When it is only between the Muſcles, there is leſs Heat and Pain, the Pulſation is not ſo deep, nor the Tenſion ſo great, and the Feaver is leſs.

The Heat and Pain proceed from the great Ebullition of the Blood, and the Acrimony of the Matter which moleſts the Fibres of the *Perioſteum*. The Tenſion ariſes from the Fermentation and Rarefaction of the Humours, for when any Matter is in Motion, ſince the Parts ſhock and mutually repulſe each other, they muſt needs leave Vacuities between them, and by conſequence the Matter muſt occupy a greater ſpace, and compreſs the Neighbouring Veſſels. The Pain and Pulſation proceeds from the Arteries, beating and ſtriking on a ſenſible Part, which is pained and inflamed, and it cannot be conceived, but that the repeated ſtrokes muſt neceſſarily encreaſe the Symptoms; The Feaver proceeds from

from the ſharp Humour of the *Paronychia* being abſorbed by the Blood, and communicating a Vitious Taint to it.

There is reaſon to believe the Tumour to be ripe, and the *Pus* fit to be let out, when the Symptoms ceaſe or abate.

The OPERATION.

This conſiſts in evacuating the *Pus*, and making an Aperture on the ſide of the Finger quite down to the Bone, for the *Perioſteum* muſt neceſſarily be opened, if the Matter be lodged under it. The Inciſion as I remarked before, muſt be made on the ſide, to avoid cutting the Tendons with the Lancet.

THE DRESSING. Put a ſmall Tent and a little Pledgit arm'd with ſome good Digeſtives into the Wound, and cover theſe with an Emplaſter in form of a Croſs, then lay over this a Compreſs cut in the ſame Figure, and let the center be applied on the Extremity of the Finger, laying the Ends along on the ſides, and keep all on with a Fillet three quarters of an Inch broad, and about a quarter of an Ell in length; there muſt be a little Hole made at one end of the Fillet, and the other end muſt be ſlit three Inches in length; when it is thus diſpos'd paſs the ſlit end thro' the Hole, and ſo bring the Fillet ſtrait to the Finger, and then wind it ſpirally round, aſcending and deſcending gradually. If the Surgeon pleaſes, he may make a Caſe of the Skin of any Animal to keep the Fingers warm, and faſten this Caſe to the Wriſt with ſmall Ribbons.

It is very convenient to keep the Arm in a Sling, which may be made of black Taffeta, otherwiſe a Napkin will ſerve well enough for this purpoſe. Put the middle of the Napkin under the Patients Arm-pits, and bring the two lower ends over the oppoſite Shoulder, then wrap the Arm in the Napkin half folded with the Elbow down and the Hand a little raiſed and the Thumb uppermoſt, then bring the two upper ends of the Napkin over the other Shoulder, and order it ſo that it may ſit neatly.

THE CURE. Procure a good Digeſtion with proper Medicines, as *Turpentine* or *Oyl of Eggs*, forbearing all greaſie things which are apt to rot the Tendons, and then deterge the Ulcer.

To

To cure the Tumour without proceeding to Operation, you muſt endeavour to appeaſe the Pain with the *Liqueur* of *Worms* baked in an Oven, *Balſam of Sulphur* is good to diſcuſs this Painful Tumour, or bring it to Suppuration, when it is diſpoſed. A Liniment made of *Ear-wax* and *Saccharum Saturni*, with a little *Oyl of Filberds* is excellent, and ſo is a Cataplaſm of *Human Dung*.

REMARKS.

Riverius Cent. 4. *Obſ.* 19. mentions a Woman who was cured of a *Paronychia* in leſs than a quarter of an Hour, by holding her Finger in the Ear of a Cat. Whilſt her Finger was there, ſhe found at certain Intervals of time, a Heat extending the whole length of her Arm, and a great Pain at the Ends of her Fingers, the Heat would ſometimes ceaſe for a ſmall while, and preſently after return with a like Pain: The Animal was in ſuch extreme Torment, that two Men could ſcarce hold it.

Fabricius Hildanus relates, *Cent.* 1. *Obſ.* 97. how he cured a *Paronychia* at the extremity of the Finger. The Patient he tells us was in very great Pain, had a Feaver, Vomited very much, though there was no apparent Swelling or Inflammation as yet. For ſome time he Fomented the Part with a Decoction of *Camomil* and *Melilot*, *Flowers* of *Fenugreek* and *Quinces* in *Cows Milk*. Afterwards he took off the Surface of the Skin, and there appeared under it ſeveral Red Spots which he cut, and there came a red Water from them. When this Water was let out, he applied to the part rags dipt in a Mixture of *Spirit of Wine* and *Venice Treacle*, upon which the Pain immediately ceaſed, and the next day the Patient was entirely well, however he purged her, and then all the Symptoms vaniſhed.

CHAP.

CHAP. XXIX.

Of Applying Cauſticks, and making Iſſues.

THIS is an *Artificial Diviſion of the Skin, by means of ſome Cauſticks laid on it.*

THE CAUSES. The occaſions which require Cauſticks, are uſually ſome Diſtempers of long ſtanding, which cannot be removed by other Medicines, as Catarrhs, Tumours, Arthritick Pains, Calloſities in Ulcers, Abſceſſes not ripe, when ſome indications require them to be opened, and in general they are uſeful for purifying the Blood, and diſcharging all Superfluous Moiſture.

THE SIGNS which indicate the application of Cauſticks, are all or any of thoſe Cauſes above-named.

The OPERATION.

When you intend to apply a Cauſtick to any Part, firſt lay on an Emplaſter with a Hole in the midſt, of the ſame ſize and ſhape you deſign the Eſcar, and then having wet the skin with a little Spittle bruiſe the Cauſtick and lay it on, covering it with another Emplaſter, and leaving it for a longer or a leſſer time, according to the thickneſs of the Patients Skin, and the Strength of the Medicine.

The moſt proper places for the application of Cauſticks in making of Iſſues are in the Neck, between the firſt and ſecond *Vertebra*, in the Arm on the outſide, in a little Cavity between the *Biceps* and *Deltoides* Muſcle, in the inner part of the Thigh in a ſmall place between the *Sartorius* and *Vaſtus internus*, in the internal part of the Knee, a little below the Termination of the Flexors of the Leg, *&c.* The principal things to be regarded in Iſſues are, That as much as poſſible they be in a Place where the Patient may dreſs them himſelf: That they be near the great Veſſels, that ſo there may be a great diſcharge; and in the laſt place, that they be in the Interſtice of two Muſcles, as remote from the Tendons as may be.

To make a good Cauſtick, take one part of *Calx viva*, and two parts of *Pot Aſhes*, put theſe in an Earthen Pot, pour hot Water on them, leaving them in Infuſion five or ſix Hours, after that boil them, and filter that which is clear through

through a Brown paper, and evaporate it in a Copper Baſon, or an Earthen pan glazed. There will remain a Salt at the Bottom, which you muſt put in a good Crucible and melt it, keeping it in a ſtrong heat, till the Moiſture be exhaled. When you find it is reduced to the form of an Oyl in the Bottom, caſt it into a Baſon and cut it into parts of what ſize and ſhape you pleaſe whilſt it continues hot, and put theſe into a ſtrong Glaſs Bottle, ſtopping it with Wax and a Bladder, becauſe the Air ſoon reſolves the Cauſtick into a *Fluor*, and for the ſame reaſon it muſt be kept in a dry place. Theſe are the ſtrongeſt Cauſticks of all, and perform their effect in the ſpace of half an Hour.

The *Lapis Infernalis* is very uſeful for conſuming Luxuriant and Superfluous Fleſh by lightly paſſing it over them. To make this, Diſſolve in a Glaſs Veſſel what quantity of *Silver* you pleaſe, with about thrice the ſame quantity of good *Spirit of Nitre*; ſet this Veſſel in a ſand Heat, and evaporate about two thirds of the Liquour, then pour the reſt hot into a good German Crucible, which muſt be pretty large by reaſon of the ebullition which is made, place this on a ſmall Fire, and leave it there till the Matter, which is very much rarified, ſinks to the Bottom, then increaſe the Fire, and it will become like an Oyl, pour this into an Ingot well greaſed and heated and it will coagulate, and may be kept in a Glaſs well ſtopt. This Stone may be made with a Mixture of Copper and Silver, but then it will not keep for ſo long a time. If you put in an Ounce of Silver, you will have an Ounce and five Drams of this Cauſtick.

THE DRESSING conſiſts in covering the Cauſtick with an Emplaſter to keep it on the part, and then laying a Compreſs over that, binding all on with a Roller more than two Inches broad. After the Cauſtick has lain on for a ſufficient time, take off the Dreſſings and ſcarifie the Eſcar with a Lancet, laying on ſome good Digeſtive or a little freſh Butter, continuing this till the Eſcar begin to ſeparate, and then if you deſign to make an Iſſue put in a ſmall Pea or a little *Orrice Root* round, and keep this on with a ſmall Compreſs and Bandage, the Bandage muſt be made of Linnen Cloth, long enough to go round the Arm, and three or four Inches broad, and on the Hem or Edge of this there muſt be two or three Holes made to put Ribbons through, and this Bandage is very convenient, becauſe

becauſe the Patient can dreſs theſe Iſſues himſelf, and draw it as ſtrait as he judges convenient.

THE CURE. The Ulcer muſt be dreſt twice a Day, putting in a new pea of *Orrice* every time, and the Cloth changed every time to prevent its ſtinking. If proud Fleſh grow in the Iſſue, let it be conſumed with burnt *Alum*.

REMARKS.

Riverius in his communicated Obſervations, *Obſ.* 2. relates that a certain Perſon had been for a long time ill afflicted with a Pain in his Back, of which at laſt he died. Sometime before his Death, he had had an Iſſue made in his Thigh four fingers breadth above the Knee, upon the Eſcar falling off, there came away an ounce and a half of Sanious Matter, and every day after above an ounce of true *Pus*. The Man being opened after his Death, there was a great quantity of *Pus* found in the Lungs, which occaſioned his Death. There was found a great Apoſtem in the Back, from whence his Pain did proceed, and a Chanel extending from the Apoſtem to the Iſſue, through which the *Pus* diſcharged it ſelf; This Remark do's ſufficiently prove how uſeful Iſſues are in caſes of this Nature.

CHAP. XXX.

Of making a Seton.

A Seton is *an Artificial Ulcer made by the paſſing of a Needle, with a Skain of Silk through the Skin.*

THE CAUSE of this Operation, is the ſame with that of making Iſſues.

THE SIGNS which indicate Setons, are the ſame with thoſe of an Iſſue.

The OPERATION.

Setons are uſually made in the Neck. When the Patient is ſate down, turn his Head and pinch up the Skin; then take a Needle made like that which the Packets uſe, with

a Skain of Silk ſoaked in *Oyl of Roſes*, and paſs the Needle through the Patients Skin, leaving the Skain in it. Some uſe a perforated *Forceps* with a Hole in it, and with this they pinch up the Skin of the Neck, and paſs the Skain thro' the Skin.

THE DRESSING conſiſts in laying a Compreſs on the Seton, and keeping it on with a Fillet round the Neck.

THE CURE. Take care every Day to take off the Dreſſings, and draw the Skain a little to change it, and continue the Seton as long as the Phyſicians ſhall judge neceſſary.

REMARKS.

Fab. Hildanus, *Cent.* 4. *Obſ.* 4. relates that a Boy of 11 years of Age was ſubject to Fluxions which encreaſed very much, ſometimes diſcharging themſelves on the Eyes, Teeth or Ears, and cauſing great Pain in thoſe parts, ſometimes again falling on the Throat, Lungs or Stomach, and there cauſing a Hourſneſs of Voice, a Cough, a *Nauſea*, Vomiting, and ſeveral other bad Accidents, till in fine his Body was reduced to a very Weak, Feeble Condition, at laſt a *Seton* being made on the Fontanel or Mould of the Head, the Child grew better from Day to Day, and in a few Months was ſo recovered, that his Friends did not know him, he appearing quite a New Perſon.

CHAP

CHAP. XXXI.

Of Cupping and Scarifying.

WET Cupping is the *Scarifying of the Back, to bring the Blood and Spirits into the Part by the help of a great Glaſs Vial filled with lighted Tow, and applied on the Scarifications.*

Dry Cupping *is without Scarification.*

THE CAUSE. Cupping is uſeful in Apoplexies, Epilepſies, Hyſterick Fits, Palſies, Contractions of the Ligaments and Tendons which ſometimes happen after Fractures and Diſlocations, becauſe when the part is warmed and rarefied, its Pores open themſelves, and receive in the more Subtil parts of the Medicines applied to it.

The Ancients applied Cupping-glaſſes to Venereal *Bubo's*, Peſtilential Tumours, and the Bites of venomous Animals to draw the Venom out of the Part, but later Authors diſapprove of this Practice, becauſe, ſay they, the Poyſon inſinuating it ſelf into the Maſs of Blood, a Cupping-glaſs is not capable of putting a ſtop to the Miſchief; others again reject Cupping-glaſſes on all occaſions whatever, denying that Scarifications determine the Blood and Spirits towards the Part which is Cupped, or that by diverting the Humours another way, the ſuffering Part is thereby eaſed, and its Inflammation abated. Thoſe who oppoſe this Practice tells us, that if this were true, the part which is cupped would appear inflamed, becauſe it is not poſſible that the Blood and Spirits ſhould flow very plentifully to a Part without a viſible Inflammation of it, which nevertheleſs in this caſe is not diſcernible. Beſides if any ſuch Inflammation ſhould ariſe, the Motion of the Blood would be interrupted by a Diviſion of the Veſſels, as it happens in all recent Wounds, and not be determin'd thither by the Pain or Attraction of the Cupping-glaſſes. Whence they conclude, that once letting Blood or taking any Sudorifick or other proper Remedy, will have a better effect than all the Cupping in the World.

The

The Ancients very fooliſhly applied Cupping-glaſſes on the top of the Head, in an Inflammation of the *Uvula*, and on the *Hypochondria* to ſtop bleeding of the Noſe, or under the Breaſts in Women, to ſtop the Flux of the *Menſtrua*, or on the midſt of the lower Belly to draw up the Womb, and on the Region of the Kidneys to allay Nephritick pains.

THE SIGNS which indicate the uſe of Cupping-glaſſes, are all thoſe Diſtempers above mentioned.

The OPERATION.

There are two ſorts of Cupping, the wet and the dry way; the firſt is deſigned to draw the Blood; and the latter only to irritate the Part, and rarefie the Humours contained in it.

In order to apply Cupping-glaſſes, place the Patient in a proper Situation according to the place on which you deſign to fix them; then rub the Part very well with a warm Cloth, and ſetting fire to the Tow in the Glaſs apply it, and the fire will be preſently extinguiſhed, and the Fleſh tumefie in that place. In ſtead of Tow, you may put a ſmall wax Candle lighted in a little Tin Candleſtick on the part, and clap one of the Glaſſes over this, the Candle will immediately go out, and the Fleſh ſwelling rife up into the Glaſs, which you may leave on for as long a time as you pleaſe. This is the way of dry Cupping.

But if you would draw Blood, make Scarifications on the Part as deep as you judge is convenient, beginning beneath and riſing upwards, becauſe if you begin above and deſcend, the Blood will hinder you from performing the Operation well. The Scarifications muſt be made a croſs one another, that ſo the skin may have no check. When this is done, you may apply Cupping-glaſſes on the Scarifications, in the ſame manner as in the dry way of Cupping, and the Blood will run into the Glaſs, which when it is half full muſt be removed to empty it and another applyed, repeating this as often as there is occaſion.

There are three ſorts of Scarifications, ſome Superficial, and theſe are ſmall ſcratches which do not enter the Skin, others are midling and extend to the Fleſh, the laſt ſort are larger and deeper, and are ſlaſhes. The firſt are only uſeful in Diſtempers of the Skin, and the Inciſions in Gangrenes and dangerous Diſtempers.

THE

THE DRESSING. After dry Cupping lay on the Part a Compreſs dipt in *Spirit of Wine*, ſimple or Camphorated, and keep it on with a Napkin folded in three pleats, and faſtned round the Breaſt if the Back be cupt, or with a Fillet if it be the Leg or Arm.

When the Part is Scarified cleanſe the Inciſion with *Spirit of Wine*, and make a Bandage.

THE CURE of Scarifications conſiſts in applying a Deſiccative Emplaſter to cicatrize them.

REMARKS.

Fab. Hildanus in his Treatiſe *de tuendâ Sanitate* obſerves, that when there is a *Coma*, a heavineſs in the Head, Defluxions on the Eyes or Throat, that Cupping-glaſſes may then be applyed on the Shoulder-blades, and that the Patient muſt barely ſtand before the Fire, and not be in too hot a place, for fear leaſt the *Vena cava* which runs along the Back be too much heated, and the Blood be put into a Ferment.

In *Cent.* 4. *Obſ.* 13. He relates the Hiſtory of a Man of forty years of Age, of a good Temper of Body, who was ſeized with a violent Flux of Blood at the Noſe. His Phyſician ordered him to keep himſelf in a hot place and undergoe a Cupping, which together ſo encreaſed his Bleeding, that in a few Hours he loſt ſeveral Pints. The Flux continued and became ſo violent, that the Blood diſcharged it ſelf outwardly, as well as into the Stomach, and in a few Days time, the Patient voided 27 *l.* by the Noſe. This Obſervation ſhews us, that on a like occaſion the Patient ought never to be kept in a very hot place, or have Cupping-glaſſes applied according to the preſent Practice.

CHAP. XXXII.

Of Leeches.

LEeches are *a ſort of Water-worms, applied to a Part to draw out Blood.*

THE CAUSE. Leeches are applied to ſuch parts as cannot endure Scarification; as the Face, Lips, Noſe, Fingers, Joynts, and the Fundament in the Piles.

THE SIGNS that Leeches ought to be applyed, are thoſe above mentioned, *viz.* a neceſſity of Scarifying, and an unaptneſs in the Part to admit of it.

The OPERATION.

You muſt not make uſe of thoſe which are taken out of ſtanding Waters, as Marſhes and Pits, (which moſt commonly have a large Head, and ſhine in the Night like Glow-worms, and have their Back ſtreaked with Blew) for theſe often are dangerous and cauſe Inflammations, Feavers and *Syncope's*; Thoſe are beſt which are found in clear and running Water, are long and ſlender, have a ſmall Head, and a greeniſh back ſtreaked with Yellow, and their Belly a little Reddiſh.

Before Leeches be applyed, let them ſtand for ſome Days in a Veſſel of clear Water to Vomit. When Leeches are kept in a Glaſs for uſe, the Water ought to be changed once in three Days, and for about ten or twelve hours before they are applyed, let them be kept in a Box, for this makes them more Hungry, and draw Blood with more eagerneſs.

Before you apply them, chafe the Part well with a Spunge dipt in warm Water or Milk, and if the Leech do not ſtick to the Part, lay on a drop or two of the Blood of ſome other Animal. Put them to the Part in the Box it ſelf, for if you touch them with your Fingers they will be irritated, and will not bite. When the Patient feels ſeveral Pricks take away the Box, and if there be not enough faſtened to the Part, apply it again.

If the Leeches fall off before they have ſucked Blood enough, take others up in a Napkin and apply them to the ſame

ſame Punctures which the firſt have made. When they do not draw enough cut off the little end of their Tail, for the Blood coming away as faſt as they ſuck it, they will never be ſatisfied and ſuck perpetually, beſides by this means what quantity they draw may be known. When they have drawn enough you muſt not pull them away, for then they will leave their Sting in the Wound, but throw ſome ſharp thing or other on their Heads, as Aſhes or the like, and then they will quit their Hold; after which you may let a little Blood run, for this carries off any Venom that may happen to be left in the Wound.

THE DRESSING. Wash the Punctures with Salt Water, and apply a Compreſs with convenient Bandage. If the Blood do's not ſtop lay on the Punctures ſome Aſtringent Medicines, as a Compreſs dipt in ſome Styptick Waters, as *Aſhes of Galls*, or ſome other Aſtringent Powders. However a Compreſs and Bandage is neceſſary, and if there be an Inflammation, the Compreſs may be dipt in *Spirit of Wine* Camphorated; aud here note, this is ſooner made by repeated extinction of lighted Camphire, than the common Way by a Solution of it.

THE CURE. Lay ſmall Pledgits of Lint on the Punctures, and if there be any Inflammation, let them be dipt in ſome Spirituous Liquour.

REMARKS.

If Leeches are taken out of a Stagnating or Muddy Water, or have not well diſgorged themſelves, they ſometimes leave Ulcers behind them in the part which they Wound.

CHAP. XXXIII.

Of Veſicatories or Bliſters.

VEſicatories are certain *Applications which raiſe ſmall Bladders or Bliſters on the Skin.*

THE CAUSE. The Occaſion of applying Bliſters are Vertigo's, Fluxons on the Eyes or Ears, Pains of the Teeth, Epilepſies, Apoplexies, Soporoſe Diſtempers, the Gout, the Bites of Venomous Animals, and the Stinging of Waſps, Bees, *&c.*

THE SIGNS which indicate Bliſtering to be neceſſary, are ſome one of thoſe immediately above recited.

The OPERATION.

Bliſters are raiſed with *Cantharides* or Spaniſh Flies dryed and powder'd, and mixed with *Leaven*, and ſo applyed to ſome one part of the Body. Before you apply any Vificatory make a light Friction of the part with a courſe Cloth to open the Pores, to make way for the more prompt Action of the Cauſtick Salts. The Skin of a Child which is thin and of a delicate contexture, do's not require ſo ſtrong a Veſicatory, as that of a grown Perſon, and more or fewer Veſicatories ought to be applyed in proportion to the quantity of Seroſities you intend to draw.

The Patient may know when a Bliſter is drawn, by reaſon he do's then feel the Pain which the Emplaſter cauſes at firſt.

Bliſters muſt not be opened till after ſome Days, when the Fleſh begins to grow a little harder, for otherwiſe the Air entring too ſoon, would create violent pain.

Bliſters ordinarily riſe in ſix or ſeven Hours. If you deſire to have a continual evacuation, leave the Bliſtring Emplaſter on the part, and a Seroſity will continually come away. In Pains of the Teeth Bliſters are frequently applyed to the Neck, and kept running for a long time.

THE DRESSING. When a Veſicatory is taken off, and the Bliſters opened, apply a Compreſs dipt in ſome Spirituous Liquour, and keep it on with ſome Bandage adapted to the Part; for inſtance, on the Temples with a Handkerchief

chief folded Triangularwiſe, on the Trunk of the Body with the Napkin, and on the Limbs with a Roller.

THE CURE. If you do not deſire the evacuation for any long time, take off the Veſicatory, waſh the Part with ſome Spirituous Liquour, and then lay on ſome good Deſiccative Emplaſter.

REMARKS.

Fab. Hildanus, Cent. 6. Obſ. 99. relates that a young Fellow playing the fool with ſome of his Comrades in an Apothecaries Shop, ſeeing a Box of *Cantharides*, asked what they would give him to eat twelve of thoſe Spaniſh Flies, they made a Bargain, and preſently told him out the number, upon which he took and ſwallowed very greadily. About Midnight he was tormented with cruel Pains in his Stomach, and piſſed Blood. However he was ſo fortunate as to eſcape with Life, which was partly owing to the Skill and Care of his Phyſicians, and partly to their being only in a groſs Powder.

Fabr. Hildanus, Centur. 6. Obſ. 88. relates, That a certain Perſon having a Cold Pituitous Swelling on the Knee, a certain Barber applyed to it a Veſicatory made of *Leaven* and *Spaniſh Flies*, which Ulcerated the whole Knee, created likewiſe a vehement Pain, Reſtleſneſs and Feaver, with a Pain in the Reins, Back and Belly, and after that he had a great Heat in the Neck of the Bladder, and could not void any thing beſides ſome drops of Blood, with intolerable pain; but *Hildanus* removing this Cataplaſm the Pain abated, the Patient made Water without difficulty, and all other Accidents ceaſed. The Barber being incenſed at his removing his Emplaſter applyed another, but the Accidents returning with more vehemence than before, and the Patient being ſenſible of the reaſon, diſcharged the Empirick. After this he purged him well with Hydragogues, and Sweated him with a Decoction *of Box*, *Guajacum*, *Saſſafras*, and *Roots of China* to purge off that Viſcous Humour, from whence the Swelling did proceed. In the laſt place, he applied *Vigo's* Cataplaſm hot for a Month together, renewing it twice a Day, and the Patient was cured.

CHAP. XXXIV.

Of the Extirpation of the Uvula.

THIS needs no Definition.

THE CAUSE. The occaſion of this Operation is ſome Eroſion, Gangrene, or Exorbitant Swelling of the *Uvula*, which hinders the Patient from Breathing or Swallowing his Aliments.

THE SIGNS of a Gangrene in the *Uvula*, are the ſame as in any other part of the Body. When a Man cannot Swallow or Breath without great difficulty, and there ſeems to be a Lump in the Throat, it is a ſign the *Uvula* is inflamed; beſides this may be eaſily ſeen by inſpecting the Mouth.

The OPERATION.

Depreſs the Tongue with the *Speculum Oris*, then take hold of the *Uvula* with a *Forceps*, and cut it off with a pair of Sciſſars.

THE DRESSING No Pledgit, Compreſs or Bandage, can be applied to this Part.

THE CURE conſiſts in ſtopping the Blood with Styptick Gargariſms. If it be requiſite to procure a good Digeſtion, make a Gargariſm for this purpoſe, with a Decoction of *Mallows*, *Marſh-mallows*, white *Lily Roots*, *Figs*, and other like ripening Ingredients, and when the Patient uſes it, let him retain ſome of it for a conſiderable time in his Mouth. In the laſt place, make a detergent Priſan with the Vulnerary Plants or warm Wine, which often ſuffices alone.

REMARKS.

Fabr. Hildanus, *Cent.* 2. *Obſ.* 19. relates the Hiſtory of a young Man, whoſe *Uvula* was ſo large he could not breath without great Difficulty, it filled up all the Roof of his Mouth quite to the *Dentes Inciſores*. This Swelling was hard, livid, unequal, painful, and diſtended with black Veins, and adhered to the Roof of his Mouth. The Patient

tient putting himſelf into the Hands of a Mountebank, ſoon after died.

CHAP. XXXV.

Of the Varices *in the Veins.*

THIS Operation is *a Ligature or ſtrait Bandage of a Vein, which is dilated.*

THE CAUSE. The internal Cauſe of *Varices* is a Thick, Grumous, Blood, coagulated by ſome Acid, which hinders the Circulation, and neceſſarily dilates the Veſſel.

Women with Child frequently have Varicoſe Swellings in their Leggs, becauſe the Iliac Veſſels being compreſt by the *Fœtus*, the refluent Blood cannot paſs in a due quantity through them, and conſequently muſt regurgitate and diſtend the Veſſels in the Feet and Legs.

The SIGNS. Theſe Tumours are great ſwoln Veins, of a Violet, Livid or Black colour, which frequently are ſeated on the Legs near the Knees. Theſe Tumours upon the leaſt compreſſion diſappear, but inſtantly return. Sometimes theſe Swellings are very ſerviceable to the Patient, eſpecially if they are Hypochondriacal or Melancholy Perſons, but if the Blood ferments in them, and ſeems diſpos'd to burſt the Vein, threatning a Malignant Ulcer by its ſharpneſs, or the Pain be violent, then you may make the Operation.

The OPERATION

Pinch up the Skin a croſs the Tumour, and let a Servant hold one end; do you take the other end and make an Inciſion lengthways, till you have laid the Veſſel bare, then take the Vein with a Hook to ſeparate it more conveniently from its Membranes, and paſs a Needle threaded with a double waxed Thread, and tie the Vein below the Dilatation, and open the Veſſel with a Lancet to let out the Blood. If you have no mind to make this Operation, you may open the Vein with a Lancet to let out the Blood, as in Bleeding, and when you think you have drawn enough make a

ſtrait Bandage, and forbear undoing it till the Swelling be down, and the Vein reduced to its Natural Size; or when you have taken away Blood enough, apply a Plate of Lead on it with Aſtringent Medicines, and bind this Plate on very ſtrictly, for by this means the Blood being hindred from paſſing through that Vein, it will by degrees be leſſened, till it is entirely gone.

If you have no mind to open the *Varix*, you may apply a Spunge dipt in a Decoction of *Roch Alum*, *Common Salt*, and four *Pomgranates*, applying it twice a day, and continuing it on for the ſpace of a Month. When the *Varix* appears to be dryed away, remove the Spunge and keep the part bound ſtrait for a Month or two, till the Swelling entirely diſappear.

The following Medicine is good againſt all Pains and Swellings of the *Varices*. ℞. *Unguent of Populeon*, Mucilages of *Pſyllium*, *Linſeed* and *Fœnugreek*, ā. ℥iſs. *Oyl of Camomil*, *Flower of Beans*, ā. ℥ij. and with Wax *q. ſ.* make a Cerate or Emplaſter.

THE DRESSING. After the Ligature is made on the *Varix*, dreſs it with ſome good Digeſtive or Balſam, that ſo the extremities of the Veſſels may cicatrize, and then put Doſſils into the Wound, and lay on a Pledgit arm'd with ſome good Digeſtive, and over this a Compreſs, keeping all on with a Roller above two Inches broad, and of a length proportioned to the Part, and rolled Spirally on it.

THE CURE conſiſts in dreſſing the Wound twice a a Day, Deterging it, and then Cicatrizing it. The Threads will rot in the Suppuration, and then they may be drawn out.

It is not enough to treat the Patient in this manner, but you muſt farther be careful to ſweeten the Blood with Sudorificks, as a Decoction of *Guajacum*, *China* and *Sarſaparilla*, not forgetting Purging and Bleeding, if the Phyſicians approve of it.

REMARKS.

Marcus Aurelius Severinus, in his Book *de Chirurgia efficaci*, *Ch.* 37. relates, That a certain Perſon had a *Varix* on the Knee, formed by the conjunction of ſeveral Veins united in ſuch manner, that they made a little Hillock which after ſeparated, and proceeded in their courſe up into the Groin.

Bartholin

Bartholin in Hiſt. 56. relates that a young Fellow continuing 13 Days without making Water, all the Veins of his Body became Varicoſe, and ſeveral of them broke, but upon giving the Patient Diureticks he made Water, and the Swelling of the Veſſels went off.

CHAP. XXXVI.

Of Reducing the Fundament.

THIS Operation is the *Reduction of the Gut into its Natural place, when it is fallen out.*

THE CAUSE. The falling out of the *Rectum*, proceeds from ſtraining in going to ſtool, from a *Paralyſis* of the Muſcular Fibres of the *Sphincter*, or a Relaxation of them by a conſtant Defluxion of Humidities, or ſome vehement Cough, long Looſneſs, Dyſentery, or the Piles, any of which are ſufficient to produce this effect.

THE SIGNS. This Diſeaſe is viſible enough, part of the Gut hanging out of the *Anus*.

If it be of long ſtanding, the Reduction is very difficult and dangerous, and there being moſt commonly a large Tumour, the Gut is inflamed and gangrenes.

If it proceeds from a *Paralyſis* of the *Sphincter*, the Diſeaſe is very hard to cure, and whatever pains you take to replace it, it notwithſtanding ſoon falls out again. But when it is recent or in young Perſons of a good Habit of Body, it may be remedied without any great difficulty.

The OPERATION.

To reduce the Fundament, place the Patient on his Belly with his Head low and his Hips raiſed, and having dipt your Fingers in *Oyl of Roſes*, gently thruſt in the Roll formed by the extraverſion of the Rugous Membrane of the *Rectum*, or take a Compreſs dipt in Warm Milk, and with this thruſt the Fundament up.

THE DRESSING. Foment the Part well and apply Aſtringents to it, keeping them on with the double T, or the Roller with four Tails ſuſpended with a Collar. The Way of making which Bandage, is deſcribed at large in the Operation of cutting for the Stone, and the *Fiſtula in Ano*. THE

THE CURE. Let the Patient lie on his Belly for ſeveral Days together, that ſo the Gut may have time to recover its Strength, and rub the Part well with *Oyl of Beetles*. This Oyl is made by the infuſion of a good quantity of *Beetles* in *Oyl of Turpentine*, expoſed to the Sun for a conſiderable time. *Oyl of Turpentine* alone is ſufficient for this purpoſe.

If the Belly be bound give Clyſters frequently, or let the Patient take an Ounce of *Oyl of ſweet Almonds* with a dram of *Cream of Tartar*. If the Pain be very troubleſome, foment the part with a Decoction of *Cowſlip* and *Camomile* Flowers in Milk. Fumigations of *Frankincenſe* and *Maſtick* are good; In ſhort, to prevent the Fundament from falling out again, uſe all ſorts of Aſtringent Remedies.

REMARKS.

Fab. Hildanus, Cent. 3. *Obſ.* 76. tells us, that a certain Countrey-Man going to ſtool, the *Rectum* fell out, and it being vehement cold Weather, he was ſeized with ſo ſharp a Pain, that he was forced to remain in the place, being unable to ſtir. The Gut grew as big as an Egg, and his Excrements which were very liquid, came away perpetually. *Hildanus* being called to him, treated him in this manner. In the firſt place he applied this Cataplaſm to the *Anus*. R. *Leaves and Flowers of* Tapſus Barbatus, *Flowers of Melilot and Camomile, Roots and Leaves of Mallows*, ā. one Handful, *Seeds of Linſeed and Fenugreek*, ā. ℥ß. *Aniſe-ſeeds*, ℥i. Boil the Ingredients in Cows Milk, and apply Stuphes wrung out of it, continuing them on for the ſpace of an hour; then he ſtrew'd a little of the following Powder on the Gut. R. *Red Roſes, Pomgranat Peels, Cypreſs Nuts, Maſtich, Frankincenſe*, Crocus Martis, *Calx of Lead*, Mix equal parts of theſe, and make a Powder. Then hanging the Patient up by the Heels, and having wrapt his Finger in a very fine Rag dipt in the Decoction, he put it into the Gut, and gently thruſt it into its Natural Place. Then he anointed the *Os Sacrum* and the Rump-Bone with a Liniment made of *Oyl of Roſes* and *Worms*, ā. ℥i. *Oyl of Roſe-buds*, ℥ß. mixt all together. In the laſt place, he purged the Patient with the compound *Syrup of Roſes*, made with *Rhubarb, Agarick and Senna*, having firſt bled him in the Arm.

CHAP.

CHAP. XXXVII.

Of Reducing the Womb when it is fallen out.

THis Operation is the *Reſtoring the Neck of the Womb to its Natural place.*

THE CAUSE. The Relaxation of the Neck of the Womb after Delivery, ſometimes proceeds from the unskilfullneſs of the Mid-wife in drawing too violently its *Rugæ*, and tearing it from the Parts to which it adheres, and ſometimes it ariſes from the Natural Laxity of the Part.

The abundance of Humidities which flow hither, ſometimes cauſe this falling out of the Womb, as it is commonly, but improperly, called, ſince it never is the Body of the Womb which comes forth, but the *Vagina* only.

THE SIGNS. The falling out or Relaxation of the *Vagina*, may be perceived without any great Difficulty; there appears a Thick, Hard, Round Subſtance not unlike a Gut, which hangs between a Womans Legs, and has a Roll at bottom with a Hole in the midſt, which is commonly miſtaken for the inner Orifice of the Womb.

A ſimple Relaxation of the Neck of the Womb is not dangerous, if there be no Inflammation, Ulcer, or Gangrene. When the Diſeaſe is recent, there is no great Difficulty in curing it, but if it be of long ſtanding, it is incurable. If it proceed from an internal Cauſe, and the Relaxation encreaſe by degrees, the Diſtemper is curable; but if the falling out of the Womb proceed from ſome external Cauſe, as the ſtraining of a Woman in Labour, or the Mid-wifes forcibly drawing out the *Rugæ*, there is but little probability of Succeſs.

The OPERATION.

For the reſtoring the *Vagina* to its proper place, let the Patient lie on her Back with her Hipps raiſed, and the Artiſt having firſt Humected his Fingers with *Oyl of Roſes*, may then gently thruſt it into its Natural place. If the *Vagina* be very much tumefied and cannot re-enter, he muſt by no means handle it roughly, for fear of an Inflammation or Gangrene; but he muſt humect and foment it with Emollient Decoctions,

Decoctions, and forbear reducing it till the Swelling be dispersed. If there be a Mortification already on the *Vagina*, it must be speedily cut off, which is the only means he can have recourse to save the Patients Life. For the doing this, let him make a Ligature on the Sound part, and cut off that which is corrupted; and if there be a *Cancer* draw the *Vagina* to him, and extirpate that by the Roots, stopping the Blood with good Stypticks.

THE DRESSING consists in introducing a Pessary into the Neck of the Womb, which is to be done in this manner. Take a good thick bit of Cork, and cut it into the shape of a Cylinder of two Inches or more in Diameter, in proportion to the largeness of the *Vagina*. This must not be round, but five or six cornered, or of any other Multangular Figure for the better retaining it, and must have a Hole in the midst to give Passage to the *Menses*: This Pessary must be dipt in white Wax to prevent it from rotting, and likewise from hurting the sides by its inequalities; and must be introduced as far as is possible into the Neck of the Womb to retain it, and be kept in till the Person be cured, or all her Lifetime if there be a necessity for it.

THE CURE. For restoring the Tone of the *Vagina*, make a Fumigation with the Skin of an *Eel*, or *Mastich* and *Olibanum*. Fomentations with *Spirit of Feverfew Camphorated*, cure obstructions of the Womb, and dry up the Superfluities, or a Pessary may be put up into the *Vagina*, as was above directed. If any Fleshy Excrescences grow in the Neck of the Womb, cut them off. If there be any Venereal Ulcers, dry them up with *Lime-Water* mixt with *Spirit of Wine*, or ℞. *Spirit of Wine Camphorated*, ℥iv. *Olibanum* in *Powder*, ℥i. Saccharum Saturni, ℥ß. *Burnt Alum*, ℥i. Dissolve all these together, and apply them hot; Or make a *Nutritum* with a sufficient quantity of *Oyl of St. Johns wort*, *Oyl of Elder* and *Lime-Water*.

REMARKS.

Kerkringius in *Obs.* 53. relates that a certain Woman having for a long time been incommoded with a Fleshy Excrescence hanging out of the Lips of her Privities, every one thought it to be a falling out of the Womb, but it being opened after her Death, it appeared to be an Excrescence of the *Vagina*.

The

The following Hiſtory made a mighty noiſe ſome time ſince, both at *Paris* and *Tholouſe*. A certain young Woman at *Tholouſe* had a Relaxation of the *Vagina*, reſembling a Mans Yard, and ſome pretend ſhe abuſed it that way, it being ſix Inches in Length, and Four in Circumference in the middle, where it was very hard. This falling out of the *Vagina*, gradually encreaſed from her Childhood, ſhe was ſearched by the Phyſicians of *Tholouſe*, who gave their Opinion, that this falling out of the Womb was a Real Yard, and upon this Determination, the Magiſtrates of the Town ordered her to go in Mans Habit. In this Equipage ſhe came to *Paris*, where ſhe got Money by ſhewing her ſelf, till upon aſſurance that ſhe was a Woman, and a promiſe of being cured, ſhe was brought into the *Hôtel Dieu*, where the deſcent was ſoon put up, and ſhe was forced to reſume her Female Dreſs to her great Regret.

CHAP. XXXVIII.

Of Opening Abſceſſes.

THis is *an Inciſion made into an Abſceſs, to let out the* Pus *contained in it.*

THE CAUSE of Abſceſſes is ſome groſs Humour, which being brought into a Part by the Circulation of the Blood, and being not able to paſs through the narrow Channels is congeſted there. This Feculent Matter is formed of a crude, viſcous Chyle, coagulated by Cold, or ſome acid or aſtringent Applications, or a thouſand like Accidents.

THE SIGNS which diſcover an Abſceſs, are a great Pain, Inflammation, and Pulſation of the Part, and a Swelling which gradually encreaſes to its height; but when the Suppuration is compleated, the Pulſation and Pain ceaſe, the Tumour grows ſofter than at firſt, and becomes white in ſome places.

The OPERATION.

The Tumour muſt be opened with a Lancet, or ſome Cauſtick.

If

If you would make the Operation with a Lancet, chuſe the thinneſt and moſt depending part, to avoid putting the Patient to more pain than need, and giving the *Pus* a free diſcharge. The Orifice muſt be too large rather than too ſmall, for the more convenient applying of Medicines and evacuating the *Pus*, which ſometimes is Grumous and Concreted.

When the Abſceſs is very large, you muſt not empty it at once, for fear the Patient fall into a *Syncope*, nor ſqueeze it to expreſs the Matter, for fear of making a contuſion of the tender Fleſh.

If the Skin which covers it be thick, as for inſtance in the Heel, pare it for making an Inciſion more conveniently and eaſily.

In opening an Abſceſs, hold the Lancet between the Extremities of the Fore-finger and Thumb, in the ſame manner as in bleeding; but if it be large and the Skin be thick, as in the Thighs and Buttocks, hold it between the Thumb and the middle Finger, that ſo you may employ more force in the uſing it.

If the Patient be timorous, you may open the Abſceſs with a Cauſtick in the manner above directed, and this is done with leſs Pain. If you endeavour to break the Tumour by Topical applications, as the *Dung of Animals*, or Humane Excrements, which are beſt of all, let them be applied as hot as the Patient can endure them, and be kept on the Part with a Compreſs and Bandage. But obſerve here, it is by no means adviſeable to wait till ſome ſwellings break of themſelves; for inſtance, ſuch as are in the Breaſt, Belly, or Fundament, or near any Bones, Tendons, or other Nervous parts, becauſe the long detention of the *Pus* in thoſe parts is apt to rot them, or leave *Fiſtula's* behind it. The ſame caution is to be us'd in Venereal Bubo's, becauſe the Pocky Venom if it be not ſoon diſcharged, is apt to infect the Maſs of Blood, and ſo in *Paronychias* for fear the *Pus* rot the Tendons of the Finger if it be kept in too long.

THE DRESSING. This conſiſts in putting Doſſils of dry Lint into the Wound (which like a Spunge abſorb the Superfluous Moiſture) with a dry Pledgit and a Compreſs over them, keeping theſe on with a Bandage adapted to the part.

THE CURE. Take off the Dreſſings twice a day, endeavouring to procure a good Digeſtion, and when you have obtained this, Deterge and Cicatrize. Beſides

Beſides local Applications, internal Medicines are of very great uſe in the cure of Abſceſſes, as Purgatives to cleanſe the Stomach and Guts, Alteratives to purifie and ſweeten the Maſs of Blood, of which laſt kind are all Sudorificks, *v. g. Diaphoretick Antimony*, *Powder* and *Salt of Vipers*, the Doſe of which is about half a Dram in two or three Spoonfuls of *Carduus Water*, or any other convenient Vehicle.

In caſe there be a Feaver, you may make uſe of ſome preparations of *Nitre*, as *Nitre Antimoniated*, Sal prunellæ, *&c.*

REMARKS.

Bartholin Cent. 1. *Hiſt.* 30. tell us, that a certain Child of four years old (who had a Dropſie of the Head, and no Member bigger than a Mans Thumb) had an Abſceſs upon the Spine in the Region of the Loins; upon opening this Swelling, there iſſued out a great quantity of Blood, and the Head became leſs, but the Child died within three Days after. The Author conjectures, that this Abſceſs had a Communication with the Spinal Marrow, and that the *Medulla Oblongata* was corrupted.

CHAP. XXXIX.

Of the Hydrocephalus *or Dropſie of the Head.*

THis Operation is *an Inciſion made in the Head, to let out the Waters lodg'd in that Part.*

THE CAUSE. An *Hydrocephalus* is a Watry Tumour on the Head.

This Diſtemper moſt commonly proceeds from an Extravaſated *Lympha*, occaſioned by ſome Blow, Fall, Wound or Compreſſion of the Veſſels. This Water is contain'd in different places, as *v. g.* between the *Pericranium* and the Teguments, between the *Cranium* and *Dura Mater*, between the Membranes of the Brain, or in its Ventricles.

THE SIGNS. When the Water is between the *Pericranium* and the Skull, the Swelling feels ſoft; if it be lodg'd between the Skull and *Dura Mater*, or in the Subſtance of the Brain, there is a great Pain in the Head attended with

a *Coma*, the Head is large and heavy, and in Children it is Swoln, their Forehead is prominent, and their Eyes run with Water.

Children moſt commonly die of this Diſtemper, and if the largeneſs of their Heads encreaſe it is an ill ſign; if the Water be lodged in the Ventricles of the Brain, there is no cure to be hoped for.

If a *Hydrocephalus* be accompanied with an Apoplexy or Lethargy, Death is not far off. If the Patient void Blood at the Noſe, it is a ſign the *Lympha* is very Acrimonious and Pungent. This Diſtemper is Chronical, and frequently Mortal to the Patient.

If the Water be lodg'd between the Teguments and the Skull, the Diſtemper is curable; but if it be beneath the Skull there is no great Hopes; however if the cure be attempted, it muſt be done in the following manner.

The OPERATION.

Make an Inciſion through the Teguments with a Lancet, and let the Orifice be large enough, becauſe the Water moſt commonly is thick and foul, and let it in the next place be made in the loweſt part to diſcharge the Swelling, which muſt be done at diverſe times, and not at once, for fear the Patient fall into a *Syncope*.

When the Water is beneath the Skull, apply the Trepan, and if it be under the *Dura Mater*, pierce that with a Lancet.

THE DRESSING is the ſame as in the Trepan, and is deſcribed in the Chapter concerning that Operation, where the Reader if he pleaſe to take the pains may find it.

If the Water be only under the *Pericranium*, the putting a *Cannula* into the Inciſion is ſufficient.

THE CURE. Confine the Patient to a regular Diet, let all his Food be drying, as roaſted Fowls, *&c.* and let him drink good Wine. Let his Exerciſe and Sleep be moderate, and let him frequently take Purgative, Diuretick, Diaphoretick, and Cephalick Medicines.

The beſt Purgatives in this caſe are Hydragogues, as *Powder of Jalap*, ℥ß. in any little Vehicle, *Reſin* of *Jalap*, from 8 to 15 gr. in *Conſerve of Roſes*, *Scammony* from 8 to 15 gr. in the ſame Conſerve, or its *Reſin*, from 8 to 12 gr.

The

The beſt Diureticks, are *Volatile Salt of Amber*, Sal Vegetabile, *Nitre refined*, or ſome drops of *Spirit of Salt*.

The beſt Diaphoreticks are the Roots of the Sudorifick Plants, as *Sarſa Parilla*, *China*, or *Guajacum* boiled in a Ptiſan, and *Diaphoretick Antimony*, *Powder* or Salt of *Vipers*, the Doſe of which we have frequently repeated.

REMARKS.

Some years ſince there was a Girl of ten years of Age ſhewn at St *Germains* Fair, whoſe Head was two foot and three inches in Circumference. This Deformity began to appear ſome time after her Birth, and ſhe was ſo ſtupified with it, that ſhe could neither Speak nor Walk, only ſome times ſhe would cry like a little Child; her Skin adhered to her Bones, and her Leggs were crooked, ſhe lived upon Milk and Spoon-Meat, and the Bones of her Head were ſeparated, eſpecially in the place of the Fontanel.

Kerkringius aſſures us, that in opening a Child of three Months and a half old, who died of an *Hydrocephalus*, he found nothing beſides a thick ſaline *Serum* in the Brain.

Tulpius tells us, he had taken five Dutch pints of Water out of the Head of a Child, and its Brain had loſt its round Figure.

Kerkringius aſſures us, he had found a Brain in a young Lad of fourteen years of Age, without any Conſiſtence. This Lad in his Life-time, had been very ſtupid and drowſie, there was a diſtance between the *Pia-Mater* and the Brain, and another between the Brain and the *Cerebel*.

In the *Miſcellanea Curioſa*, there is a Relation of the taking 30 Ounces of clear Saline Water out of the Head of a Child of one year old. At firſt thoſe who diſſected him did imagine there was no Brain, becauſe it had loſt its globous Figure, and the *Medulla Oblongata* adhered to the Arch of the Bone. In proſecuting the Diſſection, there was no Fat beneath the Skin, which always is found there in Children. There was a great quantity of Water in the *Thorax*, like that in the Head. The Kidneys were of a very unequal bigneſs, the Pituitary and Pineal Glands in the Brain were wanting, and in its *Baſis* there were ſeveral Nervous Filaments, which were judged to belong to the eighth pair, and were beſmeared with a thick Mucilage.

CHAP. XL.

Of Opening parts imperforate.

THis Operation is *making an Orifice with an Inſtrument, in parts where the Natural ones are deficient.*

THE CAUSE. The Occaſion is a deficiency in Nature, when Children are born with their Ears, Noſe, Mouth, Privities, Yard or Fundament cloſed with a Membrane (which is a continuation of the Skin) or ſome Fungous or Schirrhous Excreſcence.

THE SIGNS. Theſe defects are viſible upon inſpection, and the Child which is ſo imperforate, cannot breath through its Mouth or Noſe, or void its Excrements by its Fundament.

If the Auditory paſſage be ſtopt by a Thick Membrane, the Child will remain deaf all its Life-time, unleſs this impediment be early removed. If the *Rectum* in Girls open into the Privities, this is incurable, and the Excrements will be voided that way.

The OPERATION.

The *Fœtus* naturally has a Membrane which covers the Drum of the Ear, and if this Membrane be very thick, and Nature of its own accord do's not reſolve it, you muſt pierce it with a Lancet, otherwiſe the party will be deprived of Hearing.

If the paſſage be ſtopt by an Excreſcence, cut it off with a pair of Sciſſars, or make a Ligature with a Thread, ſtraitning it by degrees; but the Sciſſars are beſt, becauſe the Ligature is ſome time before it takes it off. Sometimes this Fungous or Schirrous Subſtance poſſeſſes all the Duct, and then no Sciſſars can reach it; in this caſe you muſt have recourſe to Cauſticks, to conſume the remaining Carnoſity. When you uſe theſe, you muſt be very careful to prevent them from hurting the Drum of the Ear, for if they ſhould touch this, they would not fail to corrode it through, and the Party loſe his Hearing for ever; to prevent which Miſchief, I think it would be convenient to faſten them to the end of your Probe, that ſo you may draw them out at pleaſure.

When

When the Childs Noſtrils are cloſed by a Membrane, it muſt be cut in the midſt lengthways. Sometimes Childrens Noſtrils adhere together after the Small Pox, in which caſe they may be ſeparated with a *Spatula*; but if they adhere too firmly, or are ſtopt by ſome Carnoſity, the Lancet muſt be uſed.

Sometimes the *Urethra* is cloſed by a Membrane, which hinders the Child from making Water. In this caſe an Inciſion muſt be made with a ſtrong Lancet directly down, for fear of Wounding the *Glans*. If the *Glans* happen to be cloſed at its extremity, and perforated under the *Penis* in the *Urethra*, open its extremity with a Lancet, and introduce a Leaden pipe to paſs through, and Scarifie the preternatural Aperture, and Cicatrize it, and then bind up the Yard with a Narrow Fillet, leaving the Child to piſs through the Pipe.

If the *Urethra* were ſtopt through its whole length, you might pierce it with a Bodkin, and then put a Leaden Pipe in till the Duct were cloſed, for without this the ſides would grow together, and the paſſage be ſtopt as before.

If the *Anus* be cloſed by a Membrane. you may make an Inciſion lengthways with a Lancet, but if it be ſtopt by a Carnous Excreſcence, you muſt pierce the Fleſh till the *Meconium* appear, but this is dangerous, and very often the Child dies in the Operation.

If only the Entry of the *Vagina* be cloſed by a Membrane, you may divide it with a Lancet; but if the ſides of the *Vagina* adhere together, you muſt place the Patient on her Back with her Knees rais'd, and her Thighs ſpread, and ſo make an Inciſion with a crooked Knife, beginning above and ending below, with the back of the Inſtrument turned toward the *Nymphæ*, and in this manner you may proceed to cut till the *Vagina* be opened.

THE DRESSING conſiſts in introducing Tents armed with good Digeſtives into the Wound, if there be any Fungous or Carnous Excreſcences, which may require a Suppuration to conſume them. If there be no neceſſity of procuring a Digeſtion, introduce *Cannula's* or Pipes of Lead proportioned to the largeneſs of the Inciſion, to hinder the parts from adhering together; and for the making theſe Pipes more eaſie, let them be well ſmeared with *Oyl of Roſes*.

THE CURE. When there is a neceſſity of making a large Wound, as there is in caſes of Excreſcences and *Fungus's*,

gus's, let the Patient be prepared by bleeding, Clyſters, and other proper Medicines before the Operation, and after it is performed let him be confined to a regular Diet.

REMARKS.

Van Horn tells us, he had ſeen a Child whoſe Yard was perforated near the *Scrotum*, and the *Urethra* quite cloſed up, who had an Artificial *Urethra* made in this manner: The Surgeon firſt made an Inciſion the whole length of the Yard, then he put in a Leaden Pipe and ſtitched the Fleſh on it, and after the Wound was Cicatrized, there remained callous Channels, through which the Childs Urine paſſed.

Some years ſince in the *Hôtel Dieu* at *Paris*, there was a Child who had no *Urethra*, and its two Teſticles were contained each in a ſeparate *Scrotum*. The Yard had a ſlit between the two *Teſtes*, which reſembled the Privities of a Woman, which made moſt, though untruly, miſtake this Child for an Hermaphrodite, for the Probe when it was put into the ſlit, paſt into the Bladder, and it appeared upon Diſſection, that he had not any of the Female Organs of Generation.

CHAP. XLI.

Of cutting Tongue-tied Children.

THIS Operation is *the cutting the Ligament of the Tongue, when it extends too near its Tip.*

THE CAUSE of cutting it, is the Inconvenience which ariſes from its length, as that the Child can never ſpeak plain, becauſe the Tongue has not liberty to ſtrike againſt the Roof of the Mouth, for the forming Articulate Sounds.

THE SIGNS. The length of the *Frænum* is viſible enough, it appearing continued to the tip of the Tongue. This Inconvenience is not in any manner dangerous, but when it is cut with the Nail as Midwifes commonly do, there is a Contuſion made, which often becomes an Ulcer difficult to be cured.

The

The OPERATION.

Hold down the Childs lower Jaw, and lift up the Tongue with a Fork, which muſt be round and blunt at the point, and cut the Ligament (as near the Tongue as poſſible) quite to the Roots, taking care not to divide the large Veſſels, for fear of a troubleſome Hæmorrhage.

The Surgeon if he pleaſe may do this more dexterouſly with his Fingers, without uſing the Fork at all. For this purpoſe, let him depreſs the lower Jaw with the Thumb of his left Hand, and preſs the Tongue with the middle Finger, and then let him cut the Ligament which is between his Thumb and Finger quite to the Root, avoiding the Veſſels.

THE DRESSING. Lay on a Pledgit dipt in ſome Styptick Water, to ſtop the Hæmorrhage if any happen, or if the Child be not old enough to be perſwaded to keep the Pledgit in the Mouth, waſh the Part with ſome Styptick Water.

THE CURE conſiſts in paſſing ſeveral times a Day the Finger under the Childs Tongue, to prevent the Tongue from adhering to the lower Jaw.

REMARKS.

Some Children have had their Tongue ſo ſtrictly tyed by this Ligament, that they could not ſuck, and ſo have died.

CHAP. XLII.

Of the Coalition of the Fingers.

THIS Operation is *the Separation of the Fingers, when they grow together by Inciſion.*

THE CAUSE. The Fingers ſometimes are united by an intervening Membrane, and the Hand reſembles a Gooſe Foot, and ſometimes they grow together without any *Medium* between.

The Union of the Fingers in the firſt Caſe, which is only a continuity of the Skin proceeds from the Imagination of the Mother. He who would ſee what Impreſſions the Mothers Imagination can have upon the *Fœtus* in the Womb, may find this Matter explained at large by the Famous *Malbranche* in his Treatiſe of *the Search after Truth.*

In the firſt Formation of the *Fœtus* in the Womb, the Fingers are ſoft and glutinous, and for this reaſon hapning to be preſt together, they grow in the ſame manner as the edges of a Wound.

THE SIGNS. This Male-formation is viſible enough.

The OPERATION.

This is made by cutting the Skin between the Fingers, when they are joyned by an intervening Membrane; but if they are glewed together without any *Medium*, by diſſecting gently each Finger.

THE DRESSING. Bind up each Finger with a ſmall Fillet to prevent them from touching, and adhering to each other after the Operation. Or uſe the Bandage called the Gantlet, which is made after this manner.

Take a Roller about two Inches broad, and about 3 or 4 Ells in length, and rolled up at one end. Firſt apply this on the Wriſt, and make two Rounds about it, then paſs obliquely on the *Metacarpus*, and proceeding to the end of the Thumb, deſcend ſpirally, making an X on the firſt Articulation of the Thumb, then make another round about the Wriſt, and reaſcend on the back of the Hand, to the extremity of the Middle Finger, and cover that, then deſcending Spirally, make an X on the firſt Articulation, that is on that

that next the Wriſt, and make Circumvolatons about the Wriſt, making a ſmall edging every time the Fillet goes round, that the upper part of the Hand may be covered juſt in the ſame manner as the three firſt Fingers were.

THE CURE conſiſts in laying Pledgits of dry Lint arm'd with Deſiccative Powders between the Fingers, and ſo Cicatrizing the Wound.

REMARKS.

Kerkringius tells us, that in the year 1688. there was found in the River *Ya* a Child which had ſeven Fingers on each Hand, eight Toes on the right Foot, and nine on the left, every one of which was perfectly well formed.

CHAP. XLIII.

Of Extracting all Extraneous Bodies.

THIS Operation is *the taking out any unnatural Subſtance, which may happen to be lodg'd in ſome part or other of a Humane Body.*

THE CAUSE is that Extraneous Subſtance which is prejudicial to the Perſon.

THE SIGNS. Whilſt any ſuch Body remains lodg'd in any part, there is moſt commonly a perpetual Pain.

The OPERATION.

If a Bullet be lodged in the Part, you muſt endeavour to extract it upon the firſt Dreſſing, for fear leaſt when the Inflammation increaſes it be pent up.

For the better extracting the Bullet, place the Patient in the ſame poſture that he was in at the time he received the Wound, and then dilate if it be neceſſary, and ſeek for the Ball with the Probe, and when you have found it, extract it with the *Forceps*, Extracter, *Terebellum*, Ducks, Cranes, or Ravens Bill.

If a Bullet or any other extraneous Body whatever enter the Fleſh ſo far, that it cannot be conveniently brought a-

way, ſearch on the oppoſite ſide with the Finger, and when you perceive where it is lodged by its hardneſs, make an Inciſion on it avoiding the Veſſels, and fetch it away through the Orifice. When it enters the Bone, ſtir it gently for fear of breaking off ſome Splinter. When the extraneous Body cannot be drawn out without Violence, you may wait for the Digeſtion which frequently throws it out.

If a Pea, Cherry-Stone, or any the like ſmall Body fall into the Ear, let the Patient lie on his ſound Ear, and bring it away with a ſmall *Forceps*, but if it be ſo large as to fill the Cavity of the Ear, and you cannot apprehend it, introduce a Probe with ſome Glutinous Matter at the end, that ſo it may ſtick to it, and come away. If ſome inſect creep into the Ear, kill it by pouring hot Oyl in.

If Sand, Duſt, or any ſuch like Body fall into the Eye, lift up the Eye-lid and put under it one of thoſe Stones found in the Head of Crabs, and called Crabs Eyes, and by ſome means or other oblige the Patient to ſleep, for ſo this will not come away till it has cleared the Eye, this way is propos'd by *Fab. Hildanus*, *Cent.* 2. *Obſ.* 13.

If any Splinter of Wood hurt the Eye, lift up the Eye-lids and take it away with a ſmall *Forceps*, or a piece of Rag rolled up and wetted at one end with the Patients Spittle, or a little Lint, or a bit of a Spunge dipt in *Roſe* or *Plantane Water* at the end of a Probe. If it be Duſt fetch it away with a *Collyrium*, or if it be a Scale of Iron, apply the Loadſtone.

If a Body be lodg'd in the Noſe extract it with a *Forceps*, or cauſe the Patient to ſneeze with Powder of *Tobacco*, *Helleborе*, or any other good Sternutatory; or if theſe do not bring it away, you may let it alone, and it will fall into the Patients Mouth of its own accord.

If any Body be ſtopt in the Throat, as for inſtance a Bone, give the Perſon ſeven or eight Grains of *Gummi Gotta*, or if the Accident be very preſſing, the ſame quantity of *Emetick Tartar* in ſome liquid Vehicle, If theſe are not ſufficient to bring away this Extraneous Body, open the Patients Mouth, Depreſs his Tongue with a *Speculum Oris*, and bring away the unnatural Body with a *Forceps*.

If the Body be ſo far down in the Throat, that you cannot apprehend it with a *Forceps*, take a piece of Spunge as big as a ſmall Nut, and faſtning it with a Thread, let the Patient ſwallow it, and then draw it back, and by this means you may often bring up any Extraneous Body lodged in the

the Throat, or you may thruſt it down with a Wax Candle.

THE DRESSING. Apply Compreſſes dipt in ſome Aſtringent and Reſolvent Liquour to prevent any Inflammation, or uſe Gargariſms of the ſame virtue.

THE CURE. If the Extraneous Body has made any Wound, or Inflamed the Throat, let the Patient abſtain from all ſolid Food, for fear leaſt the Aliments encreaſe the Inflammation by fretting the Parts in their Deſcent into the Stomach, and let him feed on good Broths, and take cooling Clyſters, having Recourſe to bleeding, if the Inflammation be very conſiderable.

REMARKS.

In uſing Sternutatories to bring Extraneous Bodies out of the Noſe, take care they be not too violent, for ſome Perſons by this means have loſt their Sight.

CHAP. XLIV.

Of the Extirpation of Scrophulous Tumours.

THIS Operation is *the Exciſion or Conſuming of Scrophulous Glands.*

THE CAUSE. When the Glands of the Neck are large or tumefied, they are ſaid to be Scrophulous. This Indiſpoſition ariſes from an acid *Lympha* which obſtructs the Glands, and coagulates the Matter contained in them. A ſedentary unactive Life, is often the occaſion of Scrophulous Tumours; for the Motion of the Blood being very ſlow, and not driving the Matter through the Part, it ſtagnates and breeds theſe Strumous Swellings, and for the ſame Reaſon, a thick, foggy Air, External Cold, and all Viſcous Meats have the ſame effect. Waters which flow down from the Mountains, are apt to breed theſe Diſtempers, becauſe their Chillneſs very much abates the rapid Motion of the Blood and thickens the *Lympha.*

Strumæ which are of a Cancerous Nature are very difficultly cured, eſpecially if they are of long ſtanding, by reaſon there

is

is a great proportion of an Acid in them; but ſuch as are ſoft and pendulous, are not altogether ſo obſtinate at firſt.

The *Bronchocele* muſt not be confounded with Scrophulous Swellings, for this is peculiar to the Neck and Throat, and is of a prodigious ſize ſometimes hanging down like a ſack, and if you compreſs it, you may perceive the *Lympha* fluctuate. Theſe ſwellings are contained in a *Cyſtis*, in which the *Lympha* is congealed, and becomes of a conſiſtence like Plaſter. This Diſtemper creates a Difficulty of ſwallowing; the Senſes of Hearing, Taſting, and Smelling are impaired, which poſſibly may be cauſed by Tumours compreſſing the Nerves, and hindring the Circulation of the Spirits, or perhaps from abundance of ſuperfluous Moiſture, which makes an inundation on the Tongue, Noſe and Auditory paſſage, and diſables them from duely diſcerning the qualities of the Objects preſented to them.

THE SIGNS. Strumous Tumours are evident enough of themſelves. In feeling the Neck one may perceive ſeveral hard and unequal ſwellings, which are only tumefied Glands. Theſe ſwellings are ſometimes very numerous and extend to the ſhoulders, and when this is ſo, they are not inflamed at all.

Strumæ in the Neck ſometimes appear outwardly and are pendulous, at other times they are implicated in the Neighbouring parts, hinder Reſpiration, and compreſs the *Larynx*. The true *Strumæ* are Hard, White and Indolent, and thoſe which are Livid and Painful are Spurious.

The OPERATION.

When the *Strumæ* are pendulous tie them with a Thread with a ſlip knot that ſo you may ſtraiten the Ligature every day by little and little, and ſo the Tumour being deprived of its Nouriſhment, may wither and fall away.

If the *Strumæ* are not Pendulous this way cannot be practiſed; and therefore in caſes of this Nature, an Inciſion muſt be made through the ſkin to lay the Gland bare, and then you muſt extirpate it together with the *Cyſtis* in which it is contained, and in doing this, you muſt be careful to diſſect the part, and to ſeparate the *Cyſtis* from the contiguous Bodies, without hurting the Nerves or Blood-Veſſels.

THE DRESSING. Put Doſſils and Pledgits armed with good Digeſtives into the Wound to procure a good Suppuration

on of the *Lympha* congeſted there, and then Deterge and Cicatrize it. The Dreſſings muſt be kept on the part with a Handkerchief folded Triangularwiſe.

THE CURE. When you do not intend to proceed to the Extirpation of a Strumous Tumour, you muſt endeavour to ſoften and reſolve it by the moſt potent Diſcutients; for inſtance, *Ammoniacum*, and the reſt of the Gumms diſſolved in *Vinegar*, reduced to the conſiſtence of an Emplaſter, and ſo applied to the part, or you may foment it with a ſponge ſoakt in *Lime Water*. Cataplaſms of the Leaves and Roots of Wild *Cowcumbers* beat up with *Goats Dung*, is an excellent Remedy.

Running *Mercury* applied to the Part affected, is a potent Diſcutient, but before it can be applied, it muſt be made into a Liniment with ſome Greaſes, *Turpentine*, or ſome of the Gumms. Or ℞. *Unguent. Martiatum*, ℥i. *Oyl of Myrtils and Bays*, ā. ℥ß. crude *Quick-ſilver* killed with Flower of *Brimſtone*, ℥ij. Mix theſe and make an Unguent. All Mercurial Medicines are apt to raiſe a Salivation, and therefore when you uſe them, you muſt frequently inſpect the Patients Mouth to ſee if the Tongue, Tonſils, Gumms, or any other part begin to ſwell; for if ſo, it is a ſign that a Salivation is ready to riſe, and then it is high time to remove all the Applications, and purge with Hydragogues. The ſame Method is to be taken if it be already begun, and you judge it convenient to prevent it, for often times a Salivation is of very great ſervice in Scrophulous Diſtempers.

You muſt never open Strumous Tumours till the Matter or *Lympha* whence they ariſe is converted into a *Pus*. And if none of the preceding Remedies ſoften or diſſipate them, you may try to bring them to ſuppuration, by an *Emplaſter* of *Melilot* malaxed with *Oyl* of *ſweet Almonds* and *Serpents Fat*, or a Cataplaſm of the Roots of *Marſh-mallows*, *White Lilies*, *Hemlock*, and *Wild Cowcumbers*, with *Oyl of Lizards*.

You muſt not open the Tumour as ſoon as the Suppuration is compleated, but leave the Abſceſs for ſome time, for the better rotting and waſting the vitiated Glands. For the conſuming what remains after the opening of the Abſceſs, put into the Wound a Digeſtive compos'd of *Turpentine*, the *Yelks of Eggs* and *Honey*, which will be better ſtill if a little *Præcipitate* be mixed with it. In the laſt place, deterge and heal the Wound with Balſam of *Sulphur*.

In the mean time you muſt not forget internal Medicines. This Powder is very good, ℞. *Sea Spunge burnt*, ℥iij. Os Sepiæ, *Jaws of a Pike*, *Crabs Eyes*, *long Pepper*, *White Ginger*, *Galls*, *Sea Shells burnt*, *Egg-ſhells*, ā. ℥i. Mix the Ingredients, and let the Patient take of this Powder ℥ß. ounce every day; let him likewiſe uſe a Ptiſan made of the Roots of *Figgwort*, *Filipendula*, Leaves of *Butchers Broom*, and *Broom* for his ordinary Drink. Powder of Humane Skulls taken in any liquid Vehicle, is a ſpecifick in Strumous Swellings of the Neck. But obſerve that the Skull muſt neither have been buried nor rotten, becauſe then it has loſt all its volatile Salts.

REMARKS.

Kerkringius Obſ. 74. tells us, that a certain Nun was very much incommoded by a *Bronchocele*, which took up all the fore-part of her Throat, and after three Months ſpace it grew ſo large, that it choaked her.

CHAP. XLV.

Of Warts, Wens, Horny and Fungous Excreſcences.

THis Operation is *an Amputation, Eroſion or Diſcuſſing of Excreſcences.*

THE CAUSE. When the ſmall Nervous Filaments (by the *Rete* of which the skin is formed) corroded thro', or by any Accident divided the Nutritious Juyce which diſtills from their extremities is congeſted, and being coagulated by the external Cold or ſome Acids, forms Warts. If theſe Warts are on the Toes, and the ſhooe preſſes the Part being compacted together they become of a Carnous Subſtance, and are rooted in the Tendons, and ſpringing from them like *Ganglions*. When theſe Excreſcences thruſt very far out and hard, they are termed Horns, and moſt commonly proceed from Bones, ſeeming to be only a prolongation of them.

Sometimes a ſoft Tumour riſes on the Joynts which increaſes inſenſibly. When this has pierced the skin, it grows

to

to a prodigious ſize in a very ſmall time, and is called a Wen. This Fleſhy, Soft, Pale and Indolent Subſtance, is formed by the Dilatation or Laceration of the ſame Membrane, Tendon, or other Nervous part, which happens to be hurt by ſome Fall, Contuſion, Luxation or Strain. This is almoſt always on the Joynt, and adheres to ſome Membranes or Tendons. It proceeds from a Mixture of the Nutritious Juyce, and the Mucilage of the Joynts, and by means of the Acids in it acquires a Cancerous Malignity. Theſe *Fungus's* ſometimes grow on the Membranes of the Brain.

THE SIGNS. Theſe Tumours are viſible of themſelves, Warts are ſmall uneven Tumours, rough like Shagreen; theſe grow deep into the skin, ſome have a large Baſis and ſharpen to a point in a Pyramidal Figure. Theſe little indurated Bodies which grow on the Feet are harder than Warts, and reſemble a Horn being Tranſparent. Theſe differ from Corns in no other reſpect, but that they are larger. *Fungus's* are ſoft, ſpungy, whitiſh, and grow ſuddenly, they are almoſt without ſenſe, and moſt commonly ariſe about the Joynts, and on the Membranes of the Brain.

Warts are not in any manner dangerous, except when they proceed from ſome Venereal Acid. Theſe ſmall Tumours are ſometimes cured by ſlipping them off, if they do not enter the skin very deep. Warts which are uneven and like Shagreen, are very apt to return after they are cut off, becauſe moſt commonly they are rooted in the Tendon. Pocky Warts are more difficult to cure than any other. Wenns continue ſometimes for ſeveral years.

The OPERATION.

Warts muſt be cut off even with the Skin, and rubbed well with *Oyl of Tartar per deliquium*. Some burn them with a Needle made red hot in the Flame of a Candle: But the better way is to make a Ligature to intercept the Nutritious Juyce, for then they ſoon dry and fall off.

As for Corns, the beſt way is to cut them to the Root, and when they grow again, as they will not fail to do, cut them a new. They muſt likewiſe be cut before Caufticks are applied to eat out the Roots, except they grow upon a Tendon, and in this caſe you muſt forbear for fear of an Inflammation or Gangrene of the Part.

Fungus's

Fungus's and Wenns may be taken off together with their Root if it appear, but if it do's not, you may conſume them with gentle Cauſticks; for if they were too ſtrong, the *Fungus* would be apt to degenerate into a *Cancer*. Or if you would take it off without Exciſion, you may make a Ligature about it, tying it every day ſtraiter to intercept the Nouriſhment which feeds it, and then apply Deſiccative Powders to ſtop the Orifice.

THE DRESSING is the ſame uſed in the applying other Cauſticks.

THE CURE. Theſe Tumours require both internal and external Medicines, to prevent the Efflux and Concretion of the Nutricious Juyce. The means to obtain this, is by blunting the Points of the Acids by Alcalies and Sudorificks, as *Diaphoretick Antimony from* ℈i. *to* ʒß. *Powder* and *Salt of Vipers* in like Doſe taken in a Glaſs of *Carduus Water*. Ptiſans made of the Sudorifick Roots are excellent. Purging with Hydragogues is very uſeful to carry off the Acid Seroſities. Of this kind, are *Jalap* and *Scammony*, or their *Reſins* taken from eight to fifteen Grains in *Conſerve of Roſes*, or any Liquid Vehicle.

The principal, external Medicines which are good againſt Warts, are the freſh *Juyce of Celandine*, which muſt be applied and continued on for ſome time, having firſt made a Superficial Inciſion, that ſo the Juyce may penetrate the better. A Solution of *Sal Armoniack*, or a Liniment of *Honey* with a little *Vitriol*, or a drop or two of flaming *Brimſtone* from a Pins Head, or *Sal Armoniack* diſſolved in *Vinegar* is good to cure Corns if the Corn be firſt cut, for otherwiſe its thickneſs would be apt to hinder the Medicine from reaching deep enough.

Aqua-fortis and Butter of *Antimony* may be dropt from the point of a Pin, and repeated frequently, ceaſing if any Inflammation ariſe. If Corns take Root in the Tendons, you muſt not corrode them to the Bottom for fear of any Inflammation or Ulcer which may enſue.

REMARKS.

Fab. Hildanus, Cent. 6. Obſ. 81. relates, That a certain young Lady had a prodigious Wart between the firſt and ſecond Bones of the *Metacarpus* of the Right Hand, which was a great Blemiſh, but he cured her in this manner; firſt he purged the Patient, and after this he made a Ligature

on

on the ſwelling with a Thread dipt in Arſenical Water, this he continued to tie ſtraiter and ſtraiter from time to time, till the Warts fell off, and then deterged the Wound with *Unguent. Apoſtolorum* and healed it, there remaining ſcarce any *Cicatrix* at all. But he adviſes the young Surgeons not to be too forward to imitate his Practice in this particular, for fear of bad Accidents happening from the uſe of Arſenick, as did in this young Lady, to remedy which he purged her, bled her, laid on Defenſatives, and gave her Cordials.

CHAP. XLVI.

Of taking out Cyſtis's *or Baggs.*

THIS Operation is *the Extirpating* Cyſtis's, *together with the Matter contained in them.*

THE CAUSE. *Cyſtis's* are formed out of Membranes torn from the adjacent parts and diſtended, which like a Bag receive the Nutricious Juyce tranſuding through the part.

THE SIGNS which demonſtrate the exiſtence of a *Cyſtis* filled with a Gypſeous or Steatomatous Matter, are principally the ſituation about the Head and Neck.

Theſe Swellings are without the leaſt Danger, but are very inconvenient.

The OPERATION.

If the ſwelling be large and have a broad *Baſis*, make a Crucial Inciſion on the Skin, and free the Bag from its adherences to the Neighbouring parts, either by the haft of the Knife, or diſſect it with the point, and take it out whole with the Matter contained in it.

Some Practitioners open theſe Bags with Cauſticks, and after Digeſtion conſume the reſt with another Cauſtick; but Extirpation is better if the Patient will ſubmit to it.

If theſe Tumours have a ſlender *Baſis*, you may take them off with a Ligature, or cut them off when they are dry and withered.

THE

THE DRESSING. For the conſuming the remainder of the Bag in Suppuration, put into the Wound Doſſils and Pledgits arm'd with good Digeſtives, ſuch as *Turpentine* and the *Yelks of Eggs*, then cover it with an Emplaſter, and keep all on with a convenient Bandage.

If part of the Bag remain in the ſwelling, conſume it with Cauſticks, and if there be an Hæmorrhage, ſtop the Flux with Powders or Styptick Waters.

THE CURE conſiſts in continuing to digeſt the ſwelling, till the remaining Bag be conſumed, and there be a laudable Suppuration, and then Deterging and Cicatrizing; during which purge the Patient, and then give him Sudorificks.

Ganglions on Tendons and other Membranous parts, if recent, are cured by rubbing them ſtrongly with the Thumb, and ſo making a ſtrait Bandage on them. But if they are of any long ſtanding, you muſt apply Diſcutients on them with a Plate of Lead, and bind this on with a Fillet, leaving the Dreſſings on the Part till the ſwelling be diſcuſſed.

REMARKS.

Fab. Hildanus, *Cent.* 3. *Obſ.* 85. relates the caſe of a young Fellow of twenty years of Age, who had the *Scrophulæ* in his Neck in ſo monſtrous a manner, that they encompaſſed it, and filled up the Cavity under the Chin, extending themſelves under the Skin down to the *Sternum*, and under the Ear to the Lamdoidal Suture. They were Hard, Livid, Unequal, and the Veins filled with black Blood. In fine, the Patient was choaked by the encreaſe of this ſwelling.

CHAP.

CHAP. XLVII.

Of cutting out the Toe Nails when enter the Fleſh.

THIS Operation is *an Amputation of part of the Toe Nail which enters the Fleſh.*

THE CAUSE. This inconvenience proceeds from a want of Care in cutting the Nail, which being preſt by the ſhooe, is bent in and thruſt into the Fleſh.

THE SIGNS. The Fleſh growing over the Nail is viſible, there is a great Pain and Inflammation of the Toe, which ſometimes is ſo great that it kindles a Feaver.

The OPERATION.

Let the Foot ſoak for ſome time in Warm Water to ſoften the Nail; then let the Surgeon place the Patient in a Chair, which is ſomething higher than his own, and laying the Patients Foot on his Knee pare away the Nail on the ſide. If there be a ſpace between the Nail and the Toe, let him paſs the point of his Sciſſars under the Nail to cut it off; but if the Nail have taken too deep root in the Fleſh, it muſt be gently ſeparated and taken off with a Knife, and not torn away by violence.

THE DRESSING. Wrap the Toe in a Deſiccative Emplaſter, as *de Minio*, and keep that on with a narrow Filler, and if there be a Flux of Blood ſtop it with ſome Stryptick Water or Powder.

THE CURE. If an Inflammation or other Accident follow apply Diſcutients, as *Spirit of Wine Camphorated*, or the like.

REMARKS.

There are many inſtances of continual Feavers, Convulſions and *Deliriums*, upon the Nail entring into the Fleſh.

CHAP. XLVIII.

Of *perforating the* Cornea.

THIS Operation is *a ſmall Inciſion made in the* Cornea, *to let out the* Pus.

THE CAUSE. The *Pus* proceeds from Blood extravaſated by ſome Blow, Inflammation, Obſtruction or Rupture of a Capillary Veſſel.

THE SIGNS which demonſtrate there is *Pus* under the *Cornea* are a ſmall Tumour, Pain, and Diſcoloration of the Part.

The OPERATION.

Let the Artiſt place the Patient in a Situation fit for the Operation, let him depreſs the Eye with a *Speculum Oculi*, and make an Inciſion with a Lancet on the Tumour at the bottom of the *Cornea*, and compreſs the Eye to ſqueeze out the *Pus*. Some would have the Surgeon ſuck it out through a Pipe, when it is too thick to come out by any other means. This Pipe muſt be made large in the middle, that ſo the *Pus* may lodge in the dilated part, and not reach the Mouth; but this Suction is hazardous becauſe there is a great danger of drawing out the Aqueous Humour of the Eye, which is one of the Organs of Viſion, tho' this Humour indeed may be reproduced.

THE DRESSING conſiſts in applying ſome mild Suppurative, which is not in the leaſt corroſive, ſuch as is for inſtance *Pigeons Blood*. If there be an Inflammation when the Eye is ſhut, lay a ſmall round Compreſs dipt in *Roſe Water* on it, and keep it on with a Handkerchief folded Triangularwiſe, as in the *Fiſtula Lachrymalis*.

THE CURE. Let the Dreſſings be taken off twice a day, and continue to digeſt the Wound as long as you judge requiſite, and if the Inflammation continues let the Patient bleed, uſe Clyſters, and let his Food be Broths and the Yolks of Eggs.

REMARKS.

Fab. Hildanus, Cent. 3. *Obſ.* 23. relates, that a Girl of ſix

ſix years of Age having long had a Defluxion on the Eye; after having tryed a great many Medicines in vain, at laſt was cured by a Seton in the Neck of the Defluxion, and the ſpot vaniſhed of its own accord.

Fab. Hildanus, *Cent.* 1. *Obſ.* 26. tells us, that a ſhoemakers Son of about 15 years of Age, received a blow on the Eye near the *Iris*, upon which the Aqueous Humour came away inſtantly, and the young Man loſt his Sight. He being call'd to him inſtantly, applied the *White of an Egg* beaten up with a little *Roſe Water* and *Saffron*; and then applied a Defenſative Emplaſter on the Forehead, made of *Bole Armoniack* and *Terra Sigillata* with *Oyl of Roſes*, and a little *Wax* and *Vinegar*, after which he gave the Patient a Clyſter. The next Day he gave him a Purge, and for ſeven or eight days together dreſt the Wound with Anodines, after which he made a *Collyrium* with *Eye-bright Water*, *Sugar* and *Tutty prepared* which he laid on the *Cicatrix*, and the Patient was cured and recovered the uſe of his ſight.

This Remark demonſtrates, that the Aqueous Humour may be reproduced in the Eye after it is loſt. This Experiment is eaſie to be made in Birds, in which it ſucceeds in a very ſmall time. Mr. *Nuck* late Profeſſor of Anatomy in the Univerſity of *Leyden*, diſcovered a Channel creeping over the *Sclerotis*, and inſerted into the *Cornea*, which ſerves to convey the Aqueous Humour into the Eye. This he firſt obſerved in diſſecting the Eye of a *Dog-Fiſh* or *Galea*, *&c.* and the Channel was large enough to receive his Probe. When he drew out the Probe the Aqueous Humour did not run out, by reaſon there was a Valve at the end of the Duct.

This Accidental Diſcovery cauſed that Gentleman to make a more exact ſcrutiny in a Sheeps Eye, and there he found five Channels in one, and ſix in another, which ran over the *Sclerotis*, and piercing the *Cornea* terminated in it. He thruſt a Hogs Briſtle into each Channel, which appeared of a black Colour. He found likewiſe two Channels in each Eye of Dogs, one under the Abducent, and the other under the Adducent Muſcles. If you deſire to obſerve theſe in the Eye of a Living Dog, you muſt lift up the upper Eye-lid and then you will ſee the place where the common Duct pierces the *Cornea*. Theſe Channels moſt commonly proceed ſtreight forward on the *Conjunctiva*, but ſometimes they turn aſide and piercing the *Sclerotis*, diſcharge their contents into the bottom of the Eye.

Fernelius in his Pathology, *Chap.* 5. *l.* 5. treating of Suffuſions, tells us he had ſeen one formed in one days time.

CHAP. XLIX.

Of the Ungula's *in the greater Angles of the Eyes.*

THIS Operation is *the Extirpation of a ſmall Membrane called* Ungula *by reaſon of its hardneſs and Figure.*

THE CAUSE of this Diſtemper is a thick Excreſcence, which extending it ſelf over the *Conjunctiva*, and ſometimes over the Pupil hinders Viſion.

THE SIGNS. This Diſtemper is viſible of it ſelf, there is a thick Membrane which takes its Riſe from the great Angle, and extends it ſelf over the whole Globe of the Eye.

The OPERATION.

If this Membrane covers the Globe of the Eye, and is not fixed to the greater Angle, lift it up and cut it off with the Sciſſars as near as poſſible to its riſe. For the raiſing it up paſs a blunt Needle threaded under it, and with the Thread raiſe it up and cut it off as near the Inſertion as may be.

When the Membrane adheres to the *Cornea*, ſome Practitioners paſs a Needle threaded with a Horſe-hair under the *Cornea*, and bring this forward and backward to ſeparate it; but I diſapprove of this Practice, becauſe it muſt neceſſarily cauſe great Pain and Inflammation, and for this Reaſon I ſhould rather chuſe to make a Ligature on the Membrane near the greater Angle of the Eye to intercept its Nouriſhment, and conſume the Membrane which covers the *Cornea* with Suppuratives, or by paſſing gently the Lunar Cauſtick frequently over it. This Cauſtick has this Advantage over all others, that it conſumes this Excreſcence without leaving any thing in the Eye, which may irritate it;

it, and there is no danger of hurting the *Cornea*, becauſe you are conſtantly Maſter of your Cauſtick.

THE DRESSING conſiſts in putting into the Eye Pledgits dipt in *Roſe* and *Plantane Water*, or other Defenſatives to prevent the Inflammation, and keeping them on with the Bandage uſed in the *Fiſtula Lachrymalis*.

THE CURE conſiſts in Bleeding, Clyſters, and a regular Diet, if there be any Inflammation.

REMARKS.

Fab. Hildanus, *Cent.* 1. *Obſ.* 2. relates, that a Man of 40. years of Age had a Schirrous Tumour about the bigneſs of a Cheſ-nut, in the greater Angle of the Eye. This ſwelling was Livid and full of ſeveral ſmall Veins, adhering on one ſide to the *Conjunctiva* quite to the *Iris*, and on the other ſide to the upper Eye-lid, and the Lachrymal Gland in ſuch manner, that it covered the whole Globe of the Eye when the Patient ſtirred it.

CHAP. L.

Of Extirpating a Cancer *of the Eye.*

THIS Operation is *an Extirpation of a* Cancer *in the Orbit.*

THE CAUSE is the ſame with that of the Breaſt, which is amply deſcribed in its proper place.

THE SIGNS are almoſt the ſame, there is a clear, ſharp, Gleet runs from the Eye. The Eye it ſelf is red and inflamed, there are ſmall Ulcers in the *Cornea* and on the Pupil which create extreme pain, and the Veſſels which creep over the Globe of the Eye are ſwoln and varicoſe, the Patient feels an intolerable pain in his Head, and the Luſtre of his Countenance is loſt, and looks of a leaden hue. Theſe Cancers ſometimes become Fiſtulous.

While the Tumour of the Eye is only a *Ficus*, the Eyes are dull and livid, and the Veſſels are neither ſwoln nor varicoſe, but ſometimes theſe Tumour degenerate into *Cancers*.

The OPERATION.

This is an Extirpating the whole Globe of the Eye, which cannot be done without ſeparating it round from its adherences, and ſo taking it out of its Orbit.

THE DRESSING. Fill the Orbit with Doſſils arm'd with ſome good Digeſtives, to conſume the remaining part of the *Cancer*, and carry it off by Suppuration, then lay on this a Pledgit arm'd with ſome good Digeſtive, and cover it with a Compreſs, keeping all on with a Handkerchief or the Bandage uſed in the *Fiſtula Lachrymalis*.

THE CURE. Remove the Dreſſings twice a Day, and renew as often your Digeſtive Applications, and continue to ſuppurate the Wound till the *Pus* be laudable, and there be no appearance of a *Cancer*, then Deterge and Cicatrize it. Let the Patients Diet be ſweet, and let him avoid all *Haut gouſts*, all *Pulſe*, let his ſleep be moderate, baniſhing all vehement Paſſions, and let him keep his Body open.

REMARKS.

Some years ſince there was a certain Man in the *Hôtel Dieu* at *Paris*, who had his Eye ſtruck out by a Blow which he received, the Globe of the Eye being without the Orbit, adhered and grew to the Cheek, and the Optick Nerve was elongated, notwithſtanding which he could diſcern any object preſented to him.

Bartholin. Cent. 1. *Hiſt.* 7. tells us, That an Occult *Cancer* happening in the right Breaſt of a Lady, ſhe applied a plate of Lead rubbed with *Quick-ſilver* once in two Days on it. Notwithſtanding which the *Cancer* encreaſed and ulcerated, which obliged the Surgeon to remove the Plate of Lead, and then the Pains ceaſed, but after ſome time they encreaſed, and *Cancer* voided Mercury every day in dreſſing it, nay the Mercury tranſuded through the very Skin it ſelf on the Shoulder Blade, and our Authour laid on a Place of Gold to extract the *Quick-ſilver*.

CHAP.

CHAP. LI.

Of the Coalition of the Eye-lids.

THIS Operation is *the Separation of the Eye-lids, when they grow together.*

THE CAUSE. This Diſtemper ariſes from ſeveral ſmall Ulcers on the edge of the Eye-lids, which are united in the ſame manner as the Lips of Wounds, when they touch each other.

THE SIGNS. This Defect is viſible the Eyes are ſhut, and the Patient cannot open the Eye-lids.

The OPERATION.

Paſs a blunt Needle under the Eye-lids and hold them up, and keeping the thread at both ends, then ſeparate them with a Lancet. If the Eye-lids adhere to the Globe of the Eye, ſeparate them dextrouſly without engaging the Globe of the Eye, for it is much better to touch the Lid than that.

If the Eye-lids adhere to the Globe of the Eye, it will be difficult to ſeparate them.

THE DRESSING conſiſts in laying ſome Pledgits dipt in Defenſative Liquors, and keeping them on with the Handkerchief folded Triangularwiſe.

THE CURE. You muſt have recourſe to bleeding, Purging and Clyſters, putting Lint dipt in *Plantane* or *Roſe-Water* between the Eye-lids, to hinder them from growing together.

REMARKS.

Fabr. Hildanus, Cent. 5. *Obſ.* 10. relates that a certain Man hapning to receive a Wound on the Eye, the upper Eye-lid grew to the Globe of the Eye, and the Phyſicians tryed ſeveral ways to free it, till at laſt he was called in, who treated him in this manner. In the firſt place he preſcribed him a regular Diet, purged him and bled him in the Arm. Then he put a ſmall piece of Silk at the end of a crooked Probe, and paſſed it under the Eye-lid, beginning

at the leſſer Angle of the Eye. Next he drew the crooked Probe from the Eye-lid, and left the Thread under it, with one end hanging out of the leſſer, and the other out of the greater Angle of the Eye, and tyed both ends of the Silk together, faſtning a piece of Lead to it of a Dram in Weight, which Lead he could ſlide all along the Silk from one end to another, upon every different Motion of the Patient; and this piece of Lead he took away in the Night-time, binding the Patients Eye up gently, and dropping the following *Collyrium* into the greater Angle of the Patients Eye three or four times in a Day. ℞. *Roſe*, *Plantane*, and *Eye-bright Waters*, ā. ℥ß. *Tutty prepared*, waſhed *Ceruſe*, *Burnt Hartſhorn*, ā. ℥i. Mix theſe in a Mortar, and add to this thick Mucilage *Quince-ſeeds*, enough to give it the conſiſtence of a Liniment.

By means of this Lead the Eye-lid was ſeparated from the Ball of the Eye in 8 or 9 days; and becauſe the *Cicatrix* did a little blemiſh and impair the Sight, he made ſeveral inunctions of the Eye-lids and Forehead with *Oyl of Worms*, and laid on the Eyes a Bag with *Betony*, *Eye-bright*, *Primroſes*, *Camomile Roſes* and *Roſemary* ſteeped in Water, and applied hot to the Part, with which the Patient was perfectly cured.

CHAP. LII.

Of drawing out Hairs when they ſtick in the Eyes.

THIS is the *pulling out Hairs which ſtick in the Eyes.*

THE CAUSE. The entring of the Hairs into the Eyes, proceeds from the ill Diſpoſition and Tortuoſity of the Pores which cauſes them to grow awry; Nay ſometimes it proceeds from ſeveral ranges of Hairs which thruſt each other out.

THE SIGNS. This is very viſible, and the Hairs pricking the Eyes, cauſe a great Pain and Inflammation.

The

The OPERATION.

Turn up the Eye-lids and pull out thoſe Hairs with a *Forceps*, but obſerve never to cut them, for being ſhort they will be ſtiff and prick the Eyes like ſo many Needles.

THE DRESSING conſiſts in laying on ſome ſmall Pledgits dipt in ſome Defenſative Liquors, to put a ſtop to the Inflammation, which may be cauſed by the Pain of the Operation, and keeping them on with a Handkerchief folded Triangularwiſe.

REMARKS.

Fab. Hildanus, Cent. 1. *Obſ.* 27. tells us, a certain Man having for a long time uſed himſelf to waſh his Eyes every Morning with cold Water, his Sight by degrees decayed, and he ſaw all Objects very confuſedly, and this at laſt ended in an Ophthalmy.

In the ſame Century, *Obſ.* 24. He tells us that a Boy of fourteen years of Age of a Phlegmatick Body, laid a Wager that he could ſneeze a Hundred times, upon which he put ſomething up his Noſe, and by irritating and tickling the Membrane of the Noſe he did it; but he was preſently ſeized with a violent pain in his Head, his Sight began to decay, and the next Morning he loſt it quite, without any Inflammation or Feaver. This Diſeaſe was at laſt cured by a Seton in the Neck, and Cupping-glaſſes applied to the Shoulders.

Bartholin in his 84. Hiſtory tells us, that the People of *Alexandria* and *Ægypt* are very apt to have two or three rows of Hairs on the Eye-lids, which prick the *Cornea* when they ſhut them, and from hence Inflammations and Pains of the Eyes are very frequent in that Countrey, and he tells us the only way to free them from this Inconvenience, is to cauterize the Part with a red hot Iron to make it callous, and prevent the Hairs from returning again.

CHAP

CHAP. LIII.

Of Drawing Teeth.

THIS Operation is *the drawing of a Tooth out of its Socket.*

THE CAUSE. The Pain of the Teeth proceeds from a ſharp Humour which irritates the Membrane that lines their *Alveoli* or Sockets. The Teeth are ſometimes rotted, or have their Surface corroded by the ſharpneſs of the *Saliva*, or the Meat lodged in their Interſtices. Sometimes they are corroded by Sweet-meats. When any one eats hot Things, and preſently eats ſomething very cold after, the Teeth grow black and carious; becauſe theſe putting the parts of the Teeth into various Motions, ſeparate them, and deſtroy their continuity; and there being ſeveral Intervals between their parts, they muſt of neceſſity abſorb ſome parts of the Light, and from hence it is not difficult to account for their blackneſs according to the Carteſian Hypotheſis of the cauſe of Colours.

THE SIGNS. Sometimes there is a ſmall, round, black, hole, which by degrees encreaſes and grows larger, and the Teeth become black and ſtinking. Pains in the Teeth are often accompanied with a great Pain in the Head, loſs of Appetite, want of Sleep, and Convulſions.

The Teeth are ſmall longiſh Bones, ſmooth and hard, which are ſtuck in their Sockets as a Nail in a piece of Wood. This ſort of Articulation as I remarked before, is called *Gomphoſis*. They begin to appear in young Children, about the ſeventh or eighth Month. The *Inciſores* or Foreteeth of the upper Jaw appear firſt, and then thoſe of the lower Jaw; the Dog-teeth come next forth, and the Grinders laſt of all. When the Teeth firſt come out they tear the Gums and the *Perioſteum*, which lines the Socket, which creates ſo great Pain, that People uſually do account a Childs Life very dubious, till the Teeth are come forth, and indeed with very good reaſon, ſince there are ſo many Accidents attend the breeding of them, as Pains, Convulſions, Feavers, Epilepſies, Vomiting, Looſneſſes, *&c.*

I conjecture Teeth are formed in this manner. The Membrane which inveſts the Teeth being a Texture of an Infini-

Infinity of ſmall Veſſels, ſpues out glutinous Matter which forms a ſort of *Stratum*, and by congeſtion of more of theſe *Strata* on one another, which in time fill up and riſe beyond the Cavity of the *Alveoli* the Teeth are formed, whoſe external part being preſt in the Maſtication of the Meat, form a Cortical part harder than the internal. The ſame Veſſels entring the *Baſis* of the Teeth, ſupply them with Nouriſhment.

The Teeth are commonly divided into *Inciſores* or Fore-teeth, *Canini* or Dog-teeth, and *Molares* or Grinders. There are moſt commonly 32 Teeth in both Jaws, *viz.* Sixteen in the upper Jaw, and ſixteen in the lower, or Four Fore-teeth, two Dog-teeth, and ten Grinders in each Jaw. The *Inciſores* or Fore-teeth are a little flat and ſharp, ſomething Convex without and hollow within, having never more than one Root. The Grinders are large and unequal, and have their *Baſis* irregular, for the better grinding and comminution of the Aliment. Theſe have ſome one, ſome two, and others three Roots, and in above two thouſand Teeth which I have viewed, I never found one that had more than three Roots diſtinct from each other.

The OPERATION.

When the Teeth are carious and rotten, the beſt way is to pull them out to be delivered from the continual Pain and ſtinking Breath, and prevent them from corrupting their Neighbours.

There are ſeveral Inſtruments uſed on this occaſion, as the Polican to pull out large Teeth which are far in the Mouth. The Paces, when they are not ſo far, and the Punch, when the Teeth are broken off cloſe to the Gum, and there is no hold.

But whatſoever the Inſtrument be with which you perform the Operation, place the Patient on a Cuſhion on the Floor, or on a low Seat, and let the Artiſt ſtand behind him, and opening his Mouth as wide as he can, if it be one of the hinder Teeth let him uſe the Polican, one end of which muſt reſt on the fore-teeth, having wrapt it in a Cloth for fear of breaking thoſe Teeth, and then having hookt the moveable branch of the Inſtrument, let him pull it ſtrongly and ſo bring out the Tooth; but in doing this he muſt take care of the ſound Teeth, for by reſting too much on them, he may chance to break them.

Great

Great care muſt be taken that the Artiſt do not miſtake a ſound Tooth for an unſound one; and in this caſe he muſt not always rely on the Patients account, for it often happens that the contiguous Teeth being painful, he points to one of them; and therefore in this caſe the ſureſt way is to take that which is black and rotten.

If the Tooth be not too far within the Mouth, the Artiſt may make uſe of the Paces. If the Tooth which is to be drawn be in the upper Jaw, the Handle of the Inſtrument muſt be turned down, and you muſt take hold of the Tooth as cloſe to the Gum as may be, having firſt ſeparated the Gum with a Fleam, for the better doing this. In drawing the Tooth out, there are three Motions at once, *viz.* turning it to the right and left, and pulling it out of the Socket.

When a Tooth is broken off near the Socket, the Punch is to be made uſe of. For this purpoſe ſeparate the Gum from the Tooth as far as is poſſible, and apply the two Teeth of the Punch as low as may be, and puſh it ſtrongly outward.

THE DRESSING. Some times there is ſo large a Flux of Blood after the pulling out of a Tooth, that it is difficult to ſtop it. For this purpoſe make a huge Tent of Lint as big as an Egg, and dipping it in the Styptick Water, put it into the Socket of the Tooth which is drawn out, and let the Patient preſs it with his Jaw, and when he cannot compreſs it himſelf, its magnitude will be preſſure enough. If there be any great loſs of Blood, let the Patient gargle his Mouth with *Oxycrate*.

THE CURE. When the Teeth are not carious, they muſt not be pulled out, though perhaps they put the Patient to a great deal of Pain. In this caſe let him take *Spirit of Wine Camphorated* into his Mouth, and lie in ſuch a Poſture that the Liquour may touch the Tooth which is affected. Since Pains in the Teeth moſt commonly proceed from an Acrimony of the *Lympha*, whoſe Fomes is in the Stomach, let the Patient take 7 or 8 grains of *Emetick Tartar* in Broth, for it is found by experience that Vomiting has often cured Pains in the Teeth.

Sometimes the Fluxion is very ſucceſsfully diverted by bleeding in the oppoſite Arm. Detergent and Emollient Clyſters are very uſeful, and ſo are Anodyne Cataplaſms made with Crumbs of *Whitebread*, *Yelks of Eggs*, *Saffron* and *Camphire* applied to the Patients Cheek to abate the Pain. *Laudanum* applied to the Temporal Artery, or a little

tle Lint dipt in a Solution of it, made in Water or Milk and put into the Ear or Mouth, is an Excellent Remedy. To hinder the progreſs of the Cariofity of a Tooth, put *Oyl of Guajacum* into it.

REMARKS.

An Extract of a Letter concerning the Teeth of divers Animals, Printed at Paris *ſome years ſince.*

The Structure of the Teeth in moſt Animals, ſhews us their Inclinations, and the Diet on which they feed.

Some Animals have their Inciſive Teeth long and ſharp, their Dog-teeth long and crooked, and their Grinders unequal and pointed, as Bears, Boars, Lyons, Wolfs, Tygers, Squirrels, Cats, Dogs, *&c.* all which are Carnivorous Animals, and live upon rapine. Their Grinders ſerve for the Maſtication and the Comminution of their Prey, the inciſive Teeth to cut it, and the Dog-teeth to retain it in the Mouth and tear it. All theſe Animals have at leaſt three fourths of their Teeth within the Jaw, which makes them much ſtronger than if a greater part of the Teeth were out.

Thoſe Animals which live on Herbage, as Oxen and Sheep have no *Inciſores*, but have flat round Teeth in their lower Jaw, and do rather pull up than cut the Graſs which they eat, and the moſt part of theſe Animals chew the Cud. River Fowl, as Geeſe, Ducks, Herns, Swans, have a long Bill which is round and flat at the end, and have a ſoft Flexible Membrane in their lower Jaw, which helps them to ſwallow their Meat with eaſe. The ſides of their Bill are like ſo many ſmall ſaws, with which they take up little Fiſh and pluck Weeds.

Birds which have a hard, crooked, ſtrong, Bill, with ſharp edges eaſily tear and cut Fleſh, and for that reaſon are Carnivorous, and ſuch for the moſt part are Birds of Prey, as the Eagle, Hawk, Raven, *&c.*

Birds which have their Bill ſtrait, ſlender, with a Channel in it, as the Linnet, Goldfinch, and Sparrow, moſt commonly feed on Seeds. The end of their Bill is cut ſharp, and they make uſe of it to break the Seeds, and cut Blades of Graſs.

Thoſe Birds which have the edges of their Bill indented, as the greateſt part of River Fowl have, feed for the moſt part upon Weeds, and theſe Indentations ſerve as a ſaw with which

which they cut them, and pull them up, as Geese, Ducks, Swans. River Fowl which only live on Fishing, have most commonly in their Bill a little set of Teeth, by the help of which they keep the Fish which they catch in their Mouths. These small points are very large in the Birds called *Fiber*, which has Teeth all along his Bill, which are long pointed, and turned in towards the Throat.

Fish which have little pointed Teeth, only live upon other little Fish which they catch, and these Teeth which point toward the Throat, serve not so much to Masticate, as to retain the Fish which they have in their Mouths. Those Fish which have their Tongue and the Palate of their Mouth paved and scaly, only live on Shell-Fish, and break the shell to eat the Meat contained in it. Tortoises which live in Water, have Teeth quite down to the Throat, and use them for the Comminution of those Plants which grow at the bottom of the Sea which they feed on. Land Tortoises have not only Teeth in their Jaws and on their Tongue, which are not directly opposite, but enter one between the other, serve only for the retention and not for the Comminution of the Aliments, and *Steno* in his Discourse *de Cane Carcharia* informs us, that Fish has six hundred Teeth, and has some still come forth as long as he lives. This Fish has several ranges of Teeth in each Jaw, which are hard, sharp, and pointed, the greatest part of which are an Inch in length, and serve only for the Retention, and not for the Comminution of its Food, which is evident since very large Animals are often found entire in its Stomach.

Animals whose Tongues are set with large pointed *Papillæ* and have these turned toward the Throat, make use of them in swallowing their Meat, and they serve to hinder it from falling out of their Mouth; of this kind are Lions, Tygers, Leopards, Panthers, &c. and then cover the whole Surface of the Tongue. Some large Fishes have their Tongue covered with Bristles which form a sort of Brush, and serve to retain the Food.

The Sea-Fox has his Tongue covered with small pieces of Bone, which are not bigger than the points of Needles, and these are white, square, and very hard.

The Cod-Fish has Teeth at the bottom of his Throat, whose points turn inwards, and it is probable they only serve to retain the Aliment. These Teeth are hard pointed, close, and make a sort of File, and there are four of them, *viz.* two above and two below, which answer to each other.

The

The *Raia* has three or four ranks of hard, ſmooth, tranſparent Bones cut Lozangewiſe, and ranged in very good order, and theſe Bones are the teeth with which they Maſticate their Meat. The Carp has grinders which ſerve for the Comminution of his Meat, he has ſix in the upper Jaw, ranged three and three together; and in the lower Jaw this Fiſh has a Cartilaginous Bone in the ſhape of a flat Olive, which does the office of Teeth. In the Seas of *Canada* there is a Fiſh which has both the Jaws flat, which ſerves for the grinding of the Meat. Theſe have flat Teeth cloſe againſt each other, and very hard, and with his Teeth he cracks the ſhell firſt, and then feeds on the Fiſh. The Fiſh called *La Vielle* has flat teeth quite to the farther end of his Throat, which ſeems to be paved with them. The Fiſh called the *Requiem* has its teeth an Inch, large, flat, and Triangular, with ſmall Indentations on the ſide. There are three ranks in each Jaw, and this Animal is ſo ſtrong, and his teeth ſo ſharp, that he can bite off the Thigh of a Man at once.

The *Viper* has two great moveable teeth in his upper Jaw, as well as the Sea-Frogg. There is a Serpent in *America*, which has a great number of teeth in each Jaw, which ſerve for the ſwallowing of his Prey, and whilſt the teeth in one Jaw remain unmov'd and ſerve to retain it, the teeth of the other are thruſt out to hook it, and bring it in again; whilſt it draws it in the teeth in the other Jaw are thruſt out, and by this Alternate Motion, the Prey is conveyed into the Throat.

The Flander bruiſes ſhells with his flat Mouth.

The Parrot eats very readily, becauſe its upper Jaw is moveable, and articulated in ſuch manner with that; though the lower Jaw be much ſhorter than the upper, yet he can thruſt it to the end.

Thoſe Birds which have the upper Jaw crookt, have the lower Jaw ſhort, but ſo notwithſtanding that they can thruſt it to the top of the upper. Thoſe Birds which have a long ſtrait Bill, have not this property of moving their lower Jaw, nor can they eat ſo well as a Raven. Small Birds whoſe Bill is ſharp and cutting, and has a Channel in it, and who only live upon Seeds, bring them to the ſides of their ſharp Bill, and turn them often about till they have found the Juncture of the Seed, and then they break it.

Toads and Serpents have ſo large a Throat, that they can ſwallow whole Fiſhes, and when they happen to take them

them wrong, they very dextrouſly toſs them into the Air, and catch them again by the Tail, that ſo the Gills may not ſtick in their Throat. Herons do not make uſe of their Bill to break ſhells, but ſwallow them entire, the Heat of their Belly relaxes the Muſcle which keeps them ſhut, and when they perceive the ſhells open, they Vomit them up again to eat the Fleſh. Boars do not employ their Tuſhes in Maſtication, but make uſe of them in tearing up Plants by the Roots.

The Crocodile has no *Inciſores* nor Grinders, all that it has are Dog-teeth, which are extremely white, hard, round, and pointed, with a Channel encompaſſing them all round, their Root is hollow and twice as long as the Tooth, and they are diſpos'd in ſuch a manner, that they leave as much ſpace full as empty.

Crabs have three teeth placed at the bottom of their Stomach, and move that part in the comminution of their Meat. The Fiſh called *Orbis*, has four teeth in its *Gula* as big as the Inciſive teeth of a Horſe.

Hares, Squirrels, and Rats, have long Inciſive teeth, ſtrong enough to gnaw any hard Body; and Beavers have very large and ſtrong ones, with which they can cut off great Branches of Trees for the building of their Hutts. Theſe paſs one over another without meeting, when the Animal makes uſe of them.

The Inſect call'd *Spondylis* has two teeth which meet like Sciſſars, and with theſe he cuts the Graſs Roots.

Beſides theſe mentioned which are drawn from the teeth, *Ariſtotle* has long ſince given us ſeveral other Marks whereby to diſtinguiſh the ſeveral Natures of Animals, and their manner of Living.

In the *Miſcellanea Curioſa*, *Obſ.* 5. There is a Relation of a Child of a year old, very lean and of a livid Complexion, who upon breeding his teeth had ſeveral white ones, and after ſome time a black one came out. The Relations were ſomething ſurprized at this, however finding that in a whole years time it did not incommode the Child, they deferred acquainting any Phyſician with the Accident; but perceiving all the teeth of the ſame ſide which came out after to be black, they called in a Surgeon, who being ignorant of the Nature of the Diſtemper Scarified the Tumour on the Gum, whereupon not only the Gum it ſelf, but the whole Cheek Ulcerated. As ſoon as the Surgeon ſaw this, he deſired the Relations to call in a Phyſician, who found the

Diſtem-

Diſtemper to be a Raging *Cancer*, with a horrible Ulcer, proceeding from improper Remedies applied to the Part. Upon this to palliate the Caſe, he adviſed the Patient to a moiſt and cooling Diet, the Child having a Hectick Feaver, and preſcribed ſome Lotions to gargle its Mouth, but notwithſtanding the uſe of all Means which could be thought of, the *Cancer* extended to the Temporal Muſcle, and the Patient died convuls'd.

Doubtleſs it is a thing without precedent, that ſo furious a Tumour ſhould extend it ſelf ſo far, without affecting the other Teeth.

It happened ſome time ſince, that a certain Perſon upon pulling out a Tooth, loſt above a pint of Blood by the Wound, and the Operator could not ſtop it, but at laſt the Flux was ſuppreſſed by a Tent wetted in the *Styptick Water* before mentioned.

Fabr. Hildanus, *Cent.* 4. *Obſ.* 21. tells us, that a certain Prioreſs of 40 years of Age, being troubled with a violent pain in her Teeth, having tryed ſeveral Remedies in vain, at laſt had *Aqua-fortis* put in them, upon which either by reaſon of the Cauſtick Nature of the Medicine, or the continuation of the Fluxion, ſeveral of her Teeth rotted, broke and came away, leaving ſeveral Cavernous *Fiſtula's* in the Chin, and Ulcers under the Glands, which voided above three pints of Matter every Day. At length all the Teeth rotted and ſhe became Feaveriſh, and the Bones of the Head were fouled.

CHAP. LIV.

Of Protheſis *or ſupplying Parts deficient.*

THIS is the *Artificial ſupplying ſome Part which is deficient in Humane Bodies.*

THE CAUSE. The moſt ordinary occaſion of this, is the Extirpation or Amputation of ſome Limb which cannot be cured by any other means; ſometimes indeed ſome Member or other is wanting in Children when they are born, or is after eaten off by Venereal Diſtempers.

THE SIGNS. The Defect is viſible.

The OPERATION.

Sometimes the ſmall Bone in the Roof of the Mouth falls as in the Pox, and then the Patients Meat comes out of his Noſe; and there are many words which he cannot pronounce plain. To remedy this Infirmity, take a thin Plate of Silver of a Figure fit to ſtop the Hole, make a little Ring in the midſt of it, and put in a ſmall bit of ſpunge, and thruſt this into the hole of the Palate, the Moiſture of the Mouth ſwells this ſpunge, and faſtens the Plate ſo cloſe to the Palate, that it is very difficult to draw it out, and by ſtaying there it ſupplies the place of the Bone which is loſt.

Sometimes the tip of the Tongue is cut off by the Teeth, and this is occaſioned either by Convulſions, or ſome Accidental Blow under the Chin. When this happens, the Patient cannot pronounce many words by reaſon the tip of the Tongue cannot ſtrike the Roof of the Mouth. For the remedying this Inconvenience, take a ſmall Spoon about the bigneſs of a Silver penny, and apply this over the Tongue in ſuch manner, that its Cavity may be downward and its Convexity upwards, that it may ſtrike the Roof of the Mouth, and by this means the Patient may pronounce his words Articulately.

When any of the Teeth fall out make new ones of Ivory, and put them in the place of the other, faſtning them with a Silver Wire.

If the Ball of the Eye fall out of the Orbit, make one of Glaſs and put it in its ſtead.

If there be any loſs of ſubſtance, as for inſtance, if a Woman has loſt a portion of Fleſh in her Arm, or a Man part of his Noſe, or the like, then cut ſuperficially the Part which you intend to prolong, and cut ſuperficially the Arm or ſome Fleſhy part in any perſon who will ſubmit to it, and apply the two Wounds to each other; for by this means they will be agglutinated in the ſame manner as the Lips of all recent Wounds, and when they are once grown together, cut of as much Fleſh as is neceſſary to ſupply the deficiency of the Part applied, and form it into ſhape with a pair of Sciſſars.

If you would thus inoculate, when the Noſe happens to be cut off Scarifie the ſides a little, and make an Inciſion into the Fleſh, put the Noſe in, and when it is well agglutinated, cut off as much as you think convenient, and pierce it to make Noſtrils, putting in two Pipes till the part be Cicatrized.

If Children have crooked Legs, put them on Boots of a firm Leather, and in time they will become ſtrait, as they grow.

If the Arms are contorted, let ſome ſtreight Splints be applied on the ſide which is bent, and then make a Bandage, and by degrees the Member will come to its Natural State. In the laſt place, when you make any Artificial Member, let them have the ſame Motion as the Natural.

THE CURE. In reſtoring diſtorted Bones, Boots, Splints, and other like Machines are not ſufficient, but you muſt likewiſe uſe Emollient and Relaxing Cataplaſms to make the Bone flexible, and the part muſt be bound ſtraiter by degrees, as you find it recovers its right Figure; for if it be bound too ſtrait at firſt, there is danger of its Gangrening.

REMARKS.

The Ancients repaired the loſs of parts, as a Noſe cut off or the like, by inoculating Fleſh out of the Arms or Buttocks of their Slaves.

CHAP. LV.

Of Transfusion and Injections into the Veins.

THIS Operation is *the Injection of some Liquours into the Vessels of an Animal, or the Transfusion of the Blood of one into the Body of another.*

THE CAUSE. The Intention of Transfusion, is that the Medicine may act more promptly and effectually. This may be practised in Paralytick Persons, when the Patient is disabled from Swallowing, by a Debility or Convulsion of the Nervous Fibres of the Gullet, or in Hypochondraical and Scorbutick Persons, or when some Styptick Vapours constringe the Throat, and hinder Deglutition or the like, happens from a swelling of the Tonsils, or Inflammation of the Muscles of the Throat in a Quinsie, or in such Persons as have a natural Antipathy to all Medicines, and cannot retain them in their Stomach; or lastly, when Medicines receive too great an Alteration in the *Primæ viæ*, and lose their effect. No internal Medicines taken by the Mouth, can act so promptly as Infusions in acute Distempers, as *Syncopes*, Palpitations, Apoplexies, *Vertigo's*, Epilepsies. Infusions put the Blood into a gentle Fermentation, and prevent Hypochondriack Distempers, Convulsive Asthma's, all Chronical radicated Diseases, and are of use in all Acute Inflammatory and Malignant Feavers.

THE SIGNS. The occasion of making Injections, are those Distempers above mentioned.

The OPERATION.

Before you make any Injection, it is necessary to consider well which Vessel is most proper for this purpose. In the first place Arteries are not very proper; for if the Incision be large, it must necessarily be dangerous, and cause an Aneurism, and the Wound be hard to heal, because the Vessel lies deep in the Flesh; on the contrary, if it be very small it will be very difficult to introduce the Instrument. Besides the injected Liquour ought to be conveyed to the Heart, the most direct way imaginable; and for this reason the Arteries are not so proper as the Veins, and the Veins in the up-

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per Syſtan ought to be preferred to thoſe in the lower, and the Jugular to the Veins of the Arm. However ſince the latter are more acceſſible, and more eaſily managed than the former, for the moſt part it is more convenient to make the Operation in them. When you have choſe the Veſſel, chafe the Part with *Wine* or *Elder Water* very hot, or *Spirit of Wine Camphorated.* After this make two Ligatures, *viz.* one above the place where you intend to make the Injection to ſtop the Blood, and cauſe the Vein to riſe, and the other below to keep the Blood from flowing out, and hindring the Operation. When the Inciſion is made lay your Finger on to cloſe it till the Inſtrument be in, and then unbind the Ligature above, to give the Infuſion room to paſs preſſing it upwards to promote its paſſing on, and when the Injection is made, cloſe the Orifice in the ſame manner as in Bleeding, and unbind the Ligature beneath, that ſo the Blood may continue its Circulation, and carry the Injection with it.

Let the Inciſion be made with a Lancet, and the Injection with a Bladder full of Liquour, at the end of which there muſt be a Silver Syphon ſlender and crooked towards the point, that ſo it may the better paſs up the Vein, or you may uſe a Silver Syringe, which is much better in all reſpects.

Transfuſion of Blood out of the Veins of one Animal into another, is performed in this manner. Take the Carotid Artery, for inſtance, of a Dog or any other Animal, and ſeparate it from the Nerve which accompanies it, and lay the Artery bare for about an Inch in length, then make a ſtrong Ligature on the upper part, and another Ligature below towards the Heart with ſlip knots, which you may looſen as occaſion ſhall require. When you have made theſe two Knots, paſs two Threads under the Artery between the two Ligatures, and then open the Artery and put a Quill into it, and tie it cloſe with a double Thread on the Pipe, and put a good ſtopple into it. When this is done, lay the Jugular Vein of any other Animal open an Inch and a half in length, and make a ſlip knot at each extremity; and between theſe two knots put two Threads under the Vein as you did in the Artery, and make an Inciſion into the Vein, and thruſt in the two pipes, one into the lower part to receive the Blood and convey it to the Heart, and the other into the upper, which comes from the Head by which the Blood of this ſecond Dog may flow out on the ground,

and when the Pipes are diſpoſed in this manner, put in a ſtopple.

When all things are thus prepared, let the Dogs be tyed and laid one by the ſide of the other, and then begin to unſtop the Pipe which goes into the deſcending part of the Jugular Vein of the Recipient Animal, and after that unſtop likewiſe the Pipe which goes into the Artery of the other Dog, and inſert two or three Pipes between them: When you have done this untie the Ligatures, and the Blood will paſs in a rapid current from the Artery of the firſt Animal into the Veins of the other. When you perceive the Blood paſſes, unſtop the Pipe which is inſerted into the aſcending part of the Jugular Vein of the Recipient Animal, (not continually but by intervals, (having firſt made a Ligature, or at leaſt compreſſing with your Fingers the Veins on the oppoſite ſide) and let the Blood run out upon the Floor, as you judge his Strength can bear, till the Emittent begins to cry, and ſo faints, falls into Convulſions, and ſo dies. Then take both Pipes out of the Jugular Vein, and having tyed the ſlip knot ſtrait and firm, cut the Veins aſunder above it. This may be done without the leaſt Inconvenience, one Jugular alone being ſufficient to convey the Blood to the Head and upper parts, becauſe the two Veins communicate about the *Larynx* by a large *Anaſtomoſis*. When you have done this, ſtitch up the skin and let the Dog go.

Let not the diſtance between the Doggs be ſo great, as to ſtretch the Veins and Arteries, which would very much hinder the conveying of the Blood from one to the other. You muſt from time to time obſerve the beating of the Blood in the Jugular Vein, and when you cannot perceive this, you may conclude that the paſſage is ſtopt by ſome Clods of concreted Blood, and when this happens, you muſt take the Pipe out of the Artery of the Emittent Dog, and unſtop it with a Probe to clear the paſſage. This is very apt to happen when the Emittent Dog is almoſt ſpent, for then the Heart projects the Blood feebly, and it coagulates much ſooner; and therefore for the making this Experiment with more Succeſs, let the Emittent Animal be larger than the Recipient; or if you pleaſe, you may take two or three Animals, provided you let as much Blood out of ths Recipient, as you convey into it; for otherwiſe it muſt unavoidably be ſuffocated.

The Animals which emit the Blood, ought as near as is poſſible to be of the ſame Conſtitution and Age, and for

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ſome days before to be fed with like Nouriſhment, that ſo their Blaod may be of the ſame Temper.

Silver or Copper Pipes are better than Quills, and theſe muſt be a little crooked and ſlender at the ends, that ſo one end may go into the Quill, and the other into the Vein or Artery with a little riſing edge, for the better faſtning the Thread.

THE DRESSING after this Operation, conſiſts in laying a good Compreſs on the Veſſel which is opened, and making the ſame Bandage as in Bleeding, and then dreſſing the Wound.

THE CURE. The Injection muſt be adapted to the Diſtemper which you intend to cure. Purgative and Vomitive Medicines are by no means proper to be injected, becauſe in all Purgatives there is a latent Malignity which weakens the Patient exceedingly, and cauſes Trembling of the Knees, a lean Viſage, and a ſinking in of the Eyes, when they are taken by the Mouth, and by conſequence cannot fail of cauſing much greater diſorders when they are injected by the Veins, and are admitted into the Maſs of Blood crude and unprepared. We find by Experience, Purgatives injected into the Veins of a Dog, create mighty Diſturbances and terrible Symptoms, and Antimonial Injections cauſe violent Vomitings and kill them.

Diuretick Injections by vertue of a Nitrous Salt, diſpoſe the Blood for a more eaſie ſeparation of the Seroſities in the Kidneys. Sudorificks may be injected ſucceſsfully, when the Patient cannot take them by the Mouth, or has taken them without effect, which laſt point indeed ought to be conſidered before any Injections are made at any time.

Authors commend half a dram of Spirit of *Sal Armoniack*, to which if you pleaſe you may add *a dram of Spirit of Wine Camphorated*; or *Volatil Salt of Sal* Armoniack with Heinſius's, *Antipeſtilential Oyl*, and ſo form a ſort of *Sal Volatile Oleoſum*, a dram of which if it be injected, is an excellent Sudorifick in Malignant Feavers. *Humane Blood, Stags, Vipers* or *Serpents Blood*, are good Sudorificks. As for Cordials, *Cinnamon* and *Ambergreaſe* are the moſt valuable. *Spirit of Cinnamon* together with diſtilled *Oyl of Amber, Ginger* and Volatil Salt of *Hartſhorn*, are admirable. *Eſſence* of *Ambergreaſe* prepared with *Spirit* of *Roſes*, is excellent. Injections of *Opium* are good to calm the Impetuoſity and Fury of the Spirits. Preparations of *Cinnamon* and *Ambergreaſe* are admirable in *Syncopes*, ariſing from

too great a Fluidity of the Blood, and ſo is *Vinegar* made of good *Wine*, and rectifyed with a mixture of *Spirit of Wine*, and *Spirit of Roſes* Ambrated. But if the *Syncope* ariſe from a coagulation of the Blood, Volatil Salts are the moſt proper Remedies to correct the Acid, and diſſolve it promptly. For this Reaſon *Tincture of Coral* with *Volatil Salt* of *Tartar* in a proper Vehicle, is a very good Remedy in *Deliquiums* and Palpitations of the Heart. The Ingredients of Apoplectick Injections, muſt be the Volatil Salts and Spirits of Plants and Animals; for inſtance, of *Harts-Horn*, *Skulls* and *Bones of Men*, *Staggs* and *Humane Blood*. *Volatil Salt* of *Amber* is a glorious Medicine, and ſo is *Spirit of Wine*, and *Compound Theriacal Water*. *Spirit* of *Lilies of the Valley* or *Black Cherries* impregnated with *Volatil Salt of Hartſhoorn* and a little *Camphire* by ſeveral Cohobations is an excellent Remedy.

Epileptick Injections may be made of Specificks actuated with *Camphire*, or allayed with *Eſſence* of *Opium*. A Spirit drawn from the *Secundines of a Woman*, are very good; and there is a mighty Antepileptick Virtue in *Peacocks*, *Storks*, *Lions*, and *Humane Dung*. In ſhort, all Specificks are proper to inject.

REMARKS.

Etmuller tell us, that having made an Injection of Spring Water into the Crural Vein of a Dog, the Animal licked the Inciſion for the ſpace of half an Hour, and then ran away, as if nothing had been done to him.

He injected an Ounce of Sack into the Veins of another Dog, but no alteration appeared in him, becauſe the Doſe was too ſmall; but if any quantity be injected, he aſſures us the Dog will reel and ſtagger like a Drunken Man.

Upon injecting an Ounce of the Golden Purging Wine, which is a Doſe ſufficient for a Man, the Dog ſeem'd to be ſick, and was perpetually running from one place to another; and ſeven Hours after, he plentifully evacuated his Body. In ſome Dogs he tells us, he found this Medicine work in an hours time.

He tells us upon injecting an Ounce of a colourleſs Infuſion of 16 grains of *Crocus Metallorum* into the Veins of a Dog, the Animal Vomited two Hours after with a Hiccough, and Sighed like Perſons in a Malignant Feaver, ſeeming to be very much diſturbed, and friſking from one end of the Chamber to the other, and the next Morning was found dead.

Another

Another Dog ſwallowed as much *Opium* as would kill a Man, but after when an Ounce of the Liquid Extract was injected, the ſnarling Cur became very quiet, fell into a profound ſleep, and in the ſpace of half an Hour could not be wakened; he run a pin through his Tongue, and into his Foot. He ſhewed only ſome ſigns of Senſe, when a pin was run into his Head. The Dog continued to ſleep for the ſpace of two Days and a Night, and then recovered and did well.

A Dog upon ſubjecting Tincture of *Opium* into an Artery fell into a *Vertigo*, a great Doſineſs, and after became very fat.

Aqua Regia being injected into the Jugular and Crural Veins of a Dog, he died ſuddenly. The Blood was found coagulated, and the principal Veſſels were burſt. *Spirit of Nitre* being injected into the Subclavian Vein of a Dog, he died ſoon after, and the Blood was found concreted in the Heart, and the other Veſſels of the Body.

A certain Soldier in the Hoſpital of *Dantzick*, being under cure for an inveterate Pox, had ſeven Drams of *Roſin* of *Scammony* infuſed in three Drams of *Eſſence* of *Guajacum*, which vomited him exceſſively; whereupon the Symptoms abated, and the Ulcers were healed in three days time.

A Servant Maid ſubject to an Epilepſie from her Infancy, had ſix grains of *Roſin* of *Jalap* diſſolved in Water of *Lily* of the *Vallies* injected into her Veins, upon which ſhe Vomited and continued ſeveral Months free from her Diſtemper.

A little *Rheniſh Wine* being injected into the Veins of a ſucking Whelp, and it heated it extraordinarily; upon injecting ſome drops of a Narcotick Liquour it became ſick and ſhivered. About half an hour after a little purgative Liquour being injected into the Veins, the Animal was purged and did well.

CHAP.

CHAP. LVI.

Of the Bones in general, and of their Structure and manner of Nutrition.

BEfore I deliver the Method of reducing Fractures and Luxations, I think it not a miſs to premiſe a general *Idea* of the Bones, with their ſtructure and manner of Nouriſhment.

The Bones are hard, and light parts which lie within the Fleſh. Theſe are the Stabiliment which ſupport and give ſhape to the whole Fabrick, and the Muſcles which move the various parts terminate in them. Their ſubſtance in Adults appears uniform upon a Tranſient View, and for this reaſon the Ancients did ſuppoſe them to be Simple and Homogeneous Bodies; but in a *Fœtus* of a Month old, they appear only to be a Congeries of Fibres of different kinds, as Veins, Arteries, Nerves, Lymphæducts, and compos'd perfectly of the ſame Materials with other Fleſh. Each Fluid circulates through its proper Veſſels, in the ſame manner as in all other parts of the Body, and the only difference conſiſts in the degrees of hardneſs which the Bones have, which does not in the leaſt alter their Figure, or obſtruct the paſſing and returning of the Liquours which ſerve for their Nouriſhment.

The Ancient Phyſicians imagined them to be ſimple and ſpermatick Subſtances, which they founded upon their appearing like hardned Glew, and not being reproduced when they are once cut off. Nature, ſay they, cures all Hurts in any part by the firſt or ſecond Intention; that is, either by reproducing the ſame Subſtance, as in all parts that are formed of Blood, or ſupplying the Defect by a *Callus*, or ſome like Acceſſory Subſtance, and thoſe parts which admit only of this latter way, are all Spermatick; they imagined that the Bones were formed in the ſame manner as Stones and Minerals in the Bowels of the Earth, by a ſubſiding of the groſs and terreſtrial Parts of the Seed; but this Opinion is refuted, by reflecting on the Structure of the Bones, which plainly appear to be Vaſcular, or a Congeries of Fibres with *Veſiculæ* between them, which communicate with each other; indeed they ſeem only to be Elongations of the

the Tendons, and there is no Bone in the Body without a Tendon annexed to it, and the Bones in time become diſtinguiſhed from the Tendons by their hardneſs. The Tendons are ſometimes though rarely found, Offified as well as Cartilages and Membranes, which are an Expanſion and Texture of Tendinous Fibres, as the *Falx* of the *Dura Mater*, and a portion of the *Aorta*, which ſometimes is found Bony in old Bodies. The Bone which is found in the *Baſis* of the Heart of a Stag or Ox, is nothing elſe but the Mouth of the *Aorta*, in which the Valves are Planted, offified, and the Tendinous part of the end of Feathers in Fowls, is often offified, likewiſe all which proves the truth of our Aſſertion.

The Ancients thought the Accetion of the Bones like other Mineral Bodies, to proceed from the congeſtion of Matter which lodging on the Part and concreting there, in time formed ſeveral *Strata* lying one over another; but this Opinion is deſtroyed by diſcovering their true Compoſition, and that they conſiſt of Fibres and Channels by which their Imperceptible Nouriſhment is conveyed to the moſt remote extremities.

The Ancients for want of Knowledge in Anatomy, and diſcovering the Veins and Arteries which every where run through the Bones, did believe them to be nouriſhed by the Marrow, becauſe that Oleous ſubſtance is not only contained in them, but has the ſame Colour, Taſt, and Sulphurous Scent with them, and humects their Subſtance; But ſince Nature always acts in an uniform manner, it is not probable that this can be the Nutritious Juyce, ſince the Bones of the Ear are entirely ſolid, and ſome other hollow Bones inſtead of Marrow, only have a Membrane interſpers'd with Arteries and Veins, or Foliaceous Bony Expanſions with numerous Blood-Veſſels, as the *Sinus* of the Brain. The Shells of Crawfiſh which are a ſort of Bone are deſtitute of Marrow, and only have a Muſcle for the moving their parts. The *Chameleon* has no Marrow in the Skull, but only the Temporal Muſcles which are contained under make their exit, from whence it may be very well inferred, that the Bones are not nouriſhed by the Marrow.

Some *Engliſh* Anatomiſts have imagined the Bones to be nouriſhed by the Nervous Juyce, which they are induced to believe, becauſe that is of the ſame colour with the Bones, and abounds in the Joynts, and near the inſertion of the Tendons. They imagine this Liquour being diſcharged from the

the Nerves into the Muſcles, inſinuates it ſelf into the Tendinous Fibres, which are continuous to the Bone; but ſince theſe Gentlemen have not hitherto proved the Nerves are hollow, or that the Liquour found near the Joynts and Inſertion of the Tendons proceeds from them, their Opinion is without Foundation. It is therefore more rational, to think that this Oyly Matter is filtred through the Glands in the Ligaments of the Joynts, and ſerves to humect and render theſe parts ſupple, and help their Motion, and that the Blood is their Nutriment. An Objection I confeſs may be raiſed, that the Bones and divers other parts of the Body are very diſſimilar; and therefore it is not probable their Nutriment ſhould be one and the ſame ſubſtance, to this I think we may reply, that the Blood however it appear to be one uniform Liquour is compos'd of parts very different in their Colour, Conſiſtence, and Quality, as appears by the ſeparation, when it is expos'd to the Air in a Porringer, beſides the parts of the Blood may aſſume a new configuration, according to the various filtrations they undergo, and the ſame Matter modified in theſe different manners, being diſpenſed to all parts of the Body, may lodge in thoſe Pores which are fitted to receive it.

For the confirmation of this Doctrine, and the evincing the Circulation of the Blood through the Bones, there needs no other proof than this; that in the Bones of Recent born Animals, one may perceive ſome drops of Fluid Blood in their Subſtance, and the Cavities of the Bones are red, add to this, that when a Bone exfoliates, and a ſmall Plate comes off, there always appears Blood beneath.

Of the Marrow.

The Marrow is a ſort of ſubtil and penetrating Oyl, prepared out of the more unctuous part of the Blood, and reſerved in ſmall *Veſiculæ*, which are interſperſed with many Veins and Arteries.

Thoſe *Virtuoſi* who have nicely examined the Structure of Trees, find a very great Analogy between them and Animal Bones, the Pith being nothing more than a Collection of *Veſiculæ* or ſmall Bladders, which contain the Sap in the ſame manner, as the Marrow is contained in Animal Bones.

When the Blood in its Circulation arrives at the narrow Extremities of the Arteries, the fine ſubtil Oyl is thrown off and conveyed by certain ſmall Channels into the Cavities of the

the Bones where it is repoſited, for the uſe which Nature has deſigned it, however it is not wholly lodged here, but ſome portion is received into the Veins, and circulates with the Blood. By this means it is prevented from corrupting, as all Animal Liquours muſt of neceſſity do, when they are once extravaſated and ceaſe to circulate. This Balſamick ſubſtance is of very great uſe to ſheath the vitious Salts, and reduce the Blood to a good and laudable temper, and make it more fluid and better diſpoſed for Circulation. This is that which the Antients underſtood by their *Humidum radicale*: Some portion of this Oyl inſinuating it ſelf into the Poroſities of the Bones, makes them more ſupple, and therefore in ſuperannuated Bodies, and ſuch as have an inveterate Pox where the Marrow is waſted, the Bones are more brittle.

Of the Callus, *and the manner how it is formed.*

When a Bone is broke, there is a Tumour grows around it, which is called a *Callus*. This proceeds from a congeſtion of the Nutritious Juyce, which flows out from the Extremities of the divided Veſſels, and is concreted around. The ſame thing happens upon dividing the Fibres, which compoſe the Bark of a Tree where part of the Juyce flows, and the reſt forms a ſort of Subſtance Analogous to the *Callus* in Bones, and ſo makes Reparation of what is loſt. In Women with Child the *Callus* is not ſo ſoon formed, as in other Perſons, becauſe a great part of the Nutritious Juyce is employ'd in perfecting of the *Fœtus*, and in all Perſons whatever the Age, Conſtitution, Diet, Seaſon of the year, Climate, Ability, and Care of the Surgeon, have a great ſhare.

There is a vulgar Miſtake, that the Bones are fuller of Marrow at ſome certain times of the Moon, than at others, but Mr. *Rohault* has irrefragably confuted this, and plainly ſhewn that at all times of the Moon whatever, there is a plenty of Marrow in the Bones of ſome, and very little in others; and that the Deficience do's ariſe from a want of Nouriſhment or great Fatigue. He has obſerved that there is but little Marrow to be found in the Bones of Sheep, which come from the remote Provinces to *Paris*, and on the contrary, that there is a great deal to be found in thoſe which have repoſed themſelves for a long time, and have been well fed before they are killed. There is another Miſtake

ſtake likewiſe which prevails amongſt ſome ſort of People, who think Fiſhes are fatter and leaner at one time of the Moon than another; for whatever be the time of the Moon, ſome Fiſh will be lean and others fat. The leanneſs of Fiſh very often proceeds from Tempeſts, or their going too far up Rivers; for ordinarily they are found very fat near the Sea, and very lean at a great Diſtance from it. Fiſhes taken near *Calais* moſt commonly are lean, becauſe the Sea thereabouts is for the moſt part very rough, and all Fiſhes waſt very much if they are kept for any time in Nets.

Moſt Bones may be diſtinguiſhed into four ſorts of parts, the hardeſt which compoſes the Body of it, Proceſſes which ariſe from it, and are continuous with it, the *Epiphyſes* or Appendages which are little additional Bones contiguous to it, and the ſeveral Protuberances which jet out in any part of it. The *Epiphyſes* are but external Addittaments, and in young Bodies may eaſily be ſeparated from the Main Bone, and there appears a Line which divides the one from the other, which after diſappears gradually, vaniſhes as the Infant grows up, till both together appear one continuous Bone.

Moſt Proceſſes ſerve for the Articulation of the Bones, and the Inſertion of the Tendons, Muſcles and Ligaments, and have different Names impoſed on them, according to their different Figures: For inſtance, if the extremity be round it is called its Head, if it inſenſibly grow larger, its Neck, if long and ſharp pointed, *Corone*; if the Heads be little and flat *Condyli*. The Proceſſes of the Bones again receive different Names from their Figure, and ſometimes are called *Styloides*, *Ancyroides*, *Coracoides*, *Pterygoides*, *Maſtoides*, from their reſembling a Probe, Anchor, the Bill of a Raven, the Nipple of a Womans Breaſt.

The Cavities of the Bones which ſerve for the Articulation of the Joynts, if they are Superficial are called *Glene*, if large *Cotyle*, and the ſmall Cavities formed for the paſſing of a Tendon are called *Sinus*, and the Holes through which the Veſſels paſs, Sciſſures. When the bottom of a Cavity is large, and its entry narrow, it is likewiſe called a *Sinus*, and a Cup or Cavity if it has a large Mouth and Bottom, and in the laſt place a Hole, if it paſſes quite thro' the ſides.

Of the ſeveral kinds of Articulation.

That Articulation where there is an evident Motion, is called

called *Diarthroſis*, and that where there is no Motion at all, is called *Synarthroſis*. There are three *Species* of *Diarthroſis*, viz. *Enarthroſis*, when the Head of the Bone is large, *Arthrodia* when it is ſmall and *Ginglymos*, when the Bones mutually receive each other.

There are three ſorts of *Synarthroſis*, viz. *Sutura*, *Harmonia*, and *Gomphoſis*. When two Bones enter into each other Indenturewiſe, this is called a Suture, in which manner the Bones of the Skull are united; but when there is a Line only, it is called *Harmonia*, and by this way the Bones of the upper Jaw are joyned. When a Bone enters into another, as a Nail into a Hole, this is called *Gomphoſis*. In the laſt place, when a Bone is flat and ſhelves down by degrees, this is called a Squammous or Scale-like Suture, and in this manner the Temple-Bone is joyned to the Parietal.

Symphyſis is not ſo properly a *Species* of Articulation, as the Coalition of two or more Bones, which become one continuous Body. This is either without any middle intervening Body, as in the tender Bones of young Children, or with ſome *Medium* which in harder Bones unites the Parts together. This *Medium* is either ſome Fleſhy Subſtance, and then it is called *Syſſarcoſis*, or ſome Cartilage, and then it is named *Synchondroſis*, or ſome Ligament, and then it is termed *Syneuroſis*. The two pieces of the lower Jaw in Children, are united by *Synchondroſis*, and the Shoulder Blade and the *Os Hyoides* by *Syſſarcoſis*, tho' to ſpeak properly indeed, the Bones of the lower Jaw are not ſo much joyned by a Cartilage, as part of them remains Cartilaginous, and do's not Oſſifie ſo ſoon as the reſt, and the Conjunction by Fleſh is really none at all, particularly in the inſtances mentioned, the Superiour extremity of the *Hyoides* is bound to the Styloidal Proceſſes, and the Shoulder Blade to the Clavicle by Ligaments, the Muſcles only ſerving for its Motion.

The Heads of all Bones are covered with a ſmooth, ſlippery Cartilage, and in the Cavity of the Joynts, there is a Mucilaginous Liquour which ſerves to lubricate them, and help their Motion. Add to all this, that the Ligaments are exceeding pliant.

CHAP.

CHAP. LVII.

Of Fractures in general.

A Fracture is *a Diviſion of a Bone, whereby the continuity is deſtroyed.*

THE CAUSE. Fractures always proceed from ſome external Cauſe, as ſome Blow, Fall, or other Accident.

Fractures are Compleat or Incompleat, Simple or Complicate.

Compleat Fractures are ſuch where the Bone is entirely broke, and Incompleat, where it is broke in part only, ſuch Fractures as are accompanied with Wounds, are called Complicate.

The Ancients reckoned up five manners, after which a Bone might be broke, and impos'd ſo many *Greek* Names of Fractures. The firſt where the Bone is broke directly a croſs, and this may be called a Tranſverſe Fracture. The ſecond, when there is a Fiſſure lengthways. The third, when the Bone was round at the end. The fourth, when the Bone was broke in ſeveral pieces. The fifth, when a Shiver was wholly ſeparated.

THE SIGNS that a Bone is broke, are the Crack which the Patient and the Standers by hear, a Depreſſion in the place of the Fracture, a privation of Motion in the Part, and a craſhing of the Bones upon touching them. Laſtly, the Part gives way when it is preſt and is crookt. If the Bones ride one over another the part is contracted, and there is a Swelling and Pain in the place where the Head of the Bone is. This is occaſioned by the tearing of the *Perioſteum*, and the Compreſſion of the Marrow. About three or four days after the Bone is reduced, there ariſes an Inflammation very like an *Eriſypelas*, which ſometimes is ſimple and only ſeated in the Skin on the Fracture, and ſometimes is attended with *Rigors*, and a Violent Heat. This *Eriſypelas* ariſes from a Laceration of the Nervous, Tendinous, and Membranous parts, eſpecially in Cacochymick Bodies. Sometimes Splinters of the Bones prick the Fleſh, and cauſe a Violent Feaver; and thus much for Tranſverſe Fractures which are ever moſt eaſie to cure when they are ſimple, and moſt difficult and dangerous when they are complicated with ſome Wound.

The

The Fiſſure of a Bone is more difficult to diſcover, than a compleat Tranſverſe Fracture, eſpecially if it be ſmall; For the better finding out of theſe Fractures, you muſt try the part well as you would a cleft ſtick, to ſee if you can diſcover any inequality in it; you muſt ask the Patient if in falling he could hear the Bone crack, if the ſwelling aroſe ſoon after, and he could perceive any thing fall down gradually.

If a Fiſſure be taken in time, there is no difficulty in curing it, but if it be neglected, or unskillfully managed, and a Cariosity enſue, it is very dangerous, and cannot be cured without Amputation of the Limb. Fractures where the Bones do much recede from their Natural place, are more difficult to cure than others.

If the Fractured Bone be broke into ſhivers and bits, the Accident is more dangerous, becauſe there is a great Contuſion and Laceration of the Membranous parts which threaten an Abſceſs. When there are two Bones in a part and only one is Fractured, the danger is much leſs than if both were broke; becauſe the Bone which is entire ſupports the other, and preſerves the Natural Figure of the part, and there is not ſo great an Extenſion neceſſary for the reſtoring it.

Fractures in the middle of any Bone are not ſo dangerous, as when they are near the Joynt, becauſe it is more difficult to reduce and keep it in its place, by reaſon of the numerous Tendons and Nerves which are apt to cauſe a multitude of bad Accidents.

Fractures in the ſoft Parts if there be no Wound or Contuſion, are not difficult to be cured, but if there be, there is danger of Pain, Inflammation, Convulſion, and ſometimes of a Gangrene.

The Re-union of Bones is more ſpeedy or ſlow, according as they are larger or leſſer, more porous or compact. Small Bones are moſt commonly united in 25 Days, and the larger ones not under 40 or 50 Days. The Thigh Bone is more difficultly united and requires a longer time, becauſe its Muſcles are large and thick, and it is very apt to fall out, and to aſſume an ill Figure, and is rarely ſo well reduced, but that the Patient remains a Cripple.

If the Reduction of a Bone be deferred too long it is ever difficult, becauſe the Juyces which circulate through the bony Fibres being concreted about the Extremities of the Veſſels, Oſſifie, and ſtopping the Pores, hinder a ſupply of Matter for the forming a *Callus*.

The Bones are for the moſt part more brittle in Winter, than at any other time, becauſe the Exceſſive cold conſtringes the Pores and hinders the ſupply of that Oyly Marrow, which humects and makes them ſupple; and for the ſame Reaſon, there is a more ſpeedy Coalition in young, than in old Bodies, becauſe the Paſſages are more open for the diſtribution of that Unctuous Medullary Subſtance.

The Bones in Big-bellied Women are not united without great Difficulty, the Reaſon of which ſeems to be, that a great part of the Nutritious Juyce in the Mothers Body, is employed in the ſervice of the *Fœtus*.

In Oblique Fractures, the parts of the Bone are retained in their place with leſs trouble than in Tranſverſe, becauſe they help to ſupport each other.

The OPERATION.

The Surgeons buſineſs in Fractures is only to bring the two ends of the Bone together, and retain them there, and in the mean time to prevent all Accidents which may happen; but the cure it ſelf, and the forming of a *Callus* for the Re-uniting the divided Bone, is the Work of Nature. For the Succeſsful doing this, the Artiſt muſt have all Neceſſaries provided, all his Dreſſings in a Readineſs, and ſome Perſons by to aſſiſt him. The Part muſt be kept in a ſtrait Situation, and the Hands which hold the Limb muſt be placed as near the Fracture as may be, and not above the next Joynt, which would be very inconvenient. For inſtance, if the Bone be a Leg and that be broke in the midſt, the Aſſiſtants muſt not take hold of the Foot, and the Thigh in order to make the Attraction, but muſt lay their Hands above the Foot, and below the Knee. If both ends of the Bone are together, there is not required ſo great an Extenſion, as when one Bone rides on the other, however it is neceſſary to make ſome ſort of Extenſion to prevent the breaking off ſome Aſperities by the ends, rubbing againſt each other.

Whilſt the Aſſiſtants keep the Part extended, the Artiſt muſt make all Even and Level with the Palm of his Hand, preſſing the Fracture all around, and paſs his Thumb all along it to try if it be equal in all parts, for then he may conclude that it is well reduced. If he perceive any Splinter of the Bone to pierce the Fleſh, he muſt make an Inciſion to reduce it, and then if it do not Re-unite, it will come away in the Suppuration. If

If there be a Fracture in the Great Bones, and they are not reduced at firſt, the Hands are not ſufficient alone to perform it, but the Artiſt muſt uſe Machines, eſpecially if the Parts of the Bone ride on one another, and the Muſcles be very ſtrong; but he muſt be careful not to make too ſtrong Extenſions for fear of breaking the Veſſels, and tearing the Tendons from the Bones.

The Signs which demonſtrate a Part to be well reduced, are a Ceſſation of Pain, the recovery of its Natural Figure, it appearing in the ſame manner as when ſound, which is to be attentively conſidered at each Dreſſing, particularly at firſt; becauſe the part newly reduced may very eaſily be drawn out of its place by the Patients turning himſelf in his Bed, or ſome other Convulſive Motion of the Muſcles.

When the Bone is reſtored make ſome proper Bandage, all which ſhall be deſcribed in their proper places.

When there is a Fiſſure only let the Part be bound ſtrait, that ſo the Fracture may reunite. When there is a large, ſoft, Tumour on the Fiſſure which ſeems to be filled with Blood collected there, or a certain Liquour which exudes out of the Bone, it muſt be opened to give vent to the Humour contained in it, and the Orifice kept open with a Tent, and treated in the ſame manner as a Complicate Fracture, and the Bone and Wound healed together.

THE DRESSING. The Bandage muſt not be too ſtrait, for fear leaſt the extraordinary Compreſſion intercept the influx of the Blood and Spirits, and the part Gangrene and come away; on the other Hand care muſt be taken that the Bandage be ſtrait enough to keep both ends of the Bone together, that they may not fall aſunder, upon the leaſt ſtirring the Body. The Bandage may be concluded to be well made, if there be a ſmall Tumour at the extremities, and the Patient is ſenſible of a ſlight Pain, and if there be no riſing, and the Patient feel no Pain, the Bandage muſt be undone, and the Part bound ſtraiter.

It is beſt to forbear all Cataplaſms, for theſe only ſtop the Pores and hinder Tranſpiration. There muſt not be too many Splints, nor theſe be bound too tight together, but there muſt be at leaſt a Fingers breadth between them, to avoid the Pain which may ariſe from too great a Compreſſion; you muſt begin to tie theſe firſt in the middle, and then above, and laſtly below.

The moſt proper time of unloing the Bandage is to be determined by the Accidents, for inſtance; When the Pati-

ent is in very great pain, or the Bandage is looſe take it off. Parts which have little Fleſh, will endure Bandage longer than Carnous parts. If there be a great itching in the Part, the Bandage ought to be taken off, for fear of an Erifypelas or Excoriation.

If there appear any Veſications on the Part when the Bandage is taken off, they muſt be opened to let out the Water, and the part fomented with a *Lixivium* and *Spirit of Wine*, or a Solution of *Sal Armoniack* or *Salt of Lead*, or a Decoction of *Sage*, *Camomil*, *Melilot*, *Roſes*, and a little *Camphire* in *White-wine*.

If no Accident happen leave the Bandage as long on as may be, taking care that it do not grow looſe.

THE CURE. When the Bone is reduced, care muſt be taken to take off the Inflammation by the uſe of proper Medicines, as Embrocating the fractured part with a ſimple Tincture of *Flowers of St. Johns wort* in *Spirit of Wine*, or the compound made by adding a third part of *Earth-worms*.

If the Part be contuſed, chafe it with a Mixture of *Honey* and *Spirit of Wine*, which is an excellent Medicine to reſolve the *Ecchymoſis*, and appeaſe all Symptoms. Inunctions with *Oyl of St. Johns wort*, and Fomentations made with a Decoction of *Roſemary* in Wine, and a Liniment of *Oyl of Earthworms* and *Turpentine*, is very good. The following Catagmatick Emplaſter is excellent. ℞. *Fine white Roſin* ℔b. *Common Turpentine*, ℥iij. Melt and incorporate theſe with Powder of *Meadow-ſweet*, *Biſtort*, *Round Birthwort*, till they are of the conſiſtence of an Emplaſter, adding a little diſtilled *Oyl of Humane Bones*, or to better the Compoſition, put in Extract of *Round Birth-wort*, or melt in Powder of *Amber* or *Balſam of Peru* when you uſe it. This Emplaſter is to be uſed after the Bone begins to re-unite. The two ends of this Emplaſter muſt not be laid over one another, but a ſmall Interval muſt be left between, and a Liniment made of *Oyl of Earthworms* acuated with the Chymical *Oyl of Roſemary* us'd outwardly.

Beſides this, all inward and outward Means muſt be made uſe of. The *Lapis Oſteocollæ* in *Comfrey Water* is a good Specifick, but it is not convenient to continue the uſe of it too long a time, for fear it breed too large a *Callus*. *Hildanus's* Powder is very good. ℞. *Oſteocolla* prepared, ℥i. *Choice Cinnamon*, ℥iij. *Sugar*, ℥i. Mix theſe and make a Powder, and give ℥ij. for a Doſe, or Mix *Oſteocolla* in a Decoction of *Perriwincle* in *Wine*, and drink ſeveral Draughts of it.

The

The Fracture muſt be unbound the third or fourth day, to ſee in what condition it is, and then muſt be bathed with Simple Water, or a Decoction of the Vulnerary Plants. The Bandage muſt not be too looſe nor too ſtrait, for if it ſhould be too ſtrait, it would hinder the Influx of the Blood and Spirits, and endanger a Gangrene. It is beſt to lay no Cataplaſms on the Part, however if it be inſiſted on, lay on *Herb Robert* pounded, or Powder of *Biſtort* infuſed in Wine, having firſt well rubbed the Part with *Oyl of St. Johns wort* to help the Re-union, and prevent an Inflammation; but a Cataplaſm is better than this.

In Fractures eſpecially where there is a Contuſion, if the Nerves, Ligaments, Tendons, or any like parts happen to be contorted or diſlocated, *Foreſtus's* Cerate may be applied, which is thus made. ℞. *Solomons Seal*, ℥iv. *Root of Marſhmallows*, ℥i. *Plantane Leaves* two Handfulls, pound them in a Mortar, then boil them, and then pulp them thro' a Sieve, and make them up with *white Wax* into a ſoft Cerate, adding *Oyl of Roſes* and *Myrtills*, ā. ℥ij. *clear Turpentine*, ℥iß. *Ung. Ægyptiacum* and *Dialthææ*, ℥ß. *Bole Armoniac*, ℥vi. *Dragons Blood*, ℥iij. *Frankincenſe*, ℥i. of all the *Sanders*, ℥ij. Mix theſe and make a Cerate, which is to be applied on the ſeventh Day in all Strains of the Nerves. And thus much for Tranſverſe Fractures.

Of Fiſſures.

Recent *Fiſſures* are eaſily cured, there being nothing more required than the laying on ſome good Catagmatick Emplaſter of *Roſin* and *Cumfrey Roots*, either with or without Splints, as occaſion ſhall require.

The Part muſt be well bound to conſolidate the Fracture, and if there be a ſoft Tumour which yields to the Impreſſion of the Finger, it muſt be opened to let out the Matter, and the Orifice kept open with a Tent, and the Wound be dreſt like a Compſicate Fracture.

When the Extremities of the broken Bone ſtick out of the Wound, and are corrupted by the Air, the end muſt be filed or taken off with Pincers, eſpecially if the point of the Bone pierce the Skin, and cannot be reduced to its Natural place, and the Wound muſt be kept open for a conſiderable time, to give the Fragments an opportunity of Re-uniting, or Exfoliating. If the Splinters are ſeparated, and neither adhere to the Bone or *Periоſteum*, they muſt be

fetcht away with a *Forceps*, but if they adhere, the beſt way is to let Nature alone, who will either Reunite or throw them off, eſpecially if ſhe be aſſiſted by the following, or ſome ſuch like Liniment. ℞. *Virgin Honey*, ℥ß. *Earth-worms in powder*, ʒiij. Mix all theſe and make an Unguent. The following is more potent. ℞. *Powder of Aloes*, *Myrrh*, ā. ʒß. Root of *Comfrey*, *round Birthwort*, ʒiij. Euphorbium, ʒij. and with a ſufficient quantity of *Turpentine* and Wax, make a Liniment.

THE DRESSING. The Bandage muſt not be too ſtrait for fear of a Mortification, nor muſt it be very looſe for fear the Bones ſeparate on the leaſt Motion.

In making and taking off the Bandage, the ſame Directions are to be obſerved as before.

REMARKS.

Fab. Hildanus, *Cent.* 4. *Obſ.* 87. relates, that a Soldier being ſhot in the Body, the Bullet paſt through his Liver, and thro' the Oblique and Tranſverſe Muſcles without hurting the Inteſtines, and through the *Os Ilium* near the *Sacrum*, and ſticking in the Skin was taken out by a ſmall Inciſion made into it. The Symptoms at firſt were very bad, but the Wound of the Liver being ſoon after cured, the Patient did not find any inconvenience. The Wound made by the Ball was ſoon cured in a Methodical Way, but about two years after the Soldier had a high Feaver with *Rigors*, and a *Bubo* aroſe in the Groin, with a great Pain and Inflammation in the place where the Wound had been. The Surgeon procured a good Digeſtion, and brought away a large quantity of Matter, and ſeveral Splinters of Bones which preſenting themſelves fair, were taken out without any great difficulty, and the Wound being healed, the Patient enjoyed a good Health. But about a year after the Ulcer broke out again, and ſeveral Fragments of Bones came off from the *Os Ileum*. This inſtance ſhews us, that a Surgeon ought to be very careful in extracting all Extraneous Bodies, ſince it appears they may be lodged in ſeveral parts of the Body for a long ſpace of time, without any notable Inconvenience.

CHAP.

CHAP. LXVI.

Of Fractures of the Noſe.

THIS Operation is *the Reducing of the Bones to their Natural Situation and Figure.*

THE CAUSE of this Fracture is always ſome External Accident, as ſome violent Blow or Fall.

THE SIGNS which demonſtrate that there is a Fracture of the Bones, are a Depreſſion, and diſtortion of Noſe which makes a diſagreeable Figure.

If the Part be not reduced it is ſoon filled with *Ozena's* or ſtinking Ulcers, and incurable Polypous Excreſcences, the Party cannot breath through it, and loſes his Smelling.

The Noſe is compos'd of its two proper Bones, and the *Os Cribroſum* and *Vomer*. The two proper Bones are two ſmall Bones pretty ſolid, and almoſt of a ſquare Figure pretty ſmooth without, but not quite ſo much within. They are joyned by a Suture in the place where they meet with the Bones of the Forehead and the upper Jaw, and theſe two Bones form the bridge of the Noſe, and it is theſe which are Fractured and Diſlocated by violent blows. As for the *Os Cribroſum* or *Ethmoides*, that is deſcribed in the enumeration of the Bones of the Skull, in the Chapter of the Trepan, the *Vomer* receives its Name from its reſemblance to a Plow-ſhare; in its lower part it has a Cavity, in which a ſmall Proceſs from the Sphænoidal Bone is enchaſed. This Bone is very minute, and in its upper has a ſmall Channel in which the Tongue of the Bony Partition of the *Ethmoides* is enchaſed. The *Septum Narium* or partition of the Noſtrils is formed of theſe two Bones, and Surgeons muſt have a great care not to hurt this when they apply Cauſticks to conſume Polypous Excreſcences of the Noſe.

The lower and inmoſt part of the Noſe is formed by a Plane made of a Portion of the Bones of the upper Jaw, and thoſe of the Palate. The ſmall Bones of the Palate are very thin, and for that Reaſon very apt to cariate in the Venereal Diſtemper, which if it happens, makes the party ſnuffle or ſpeak in the Noſe. The way to remedy this in-

convenience, is to ſtop that Hole with a thin Plate of Silver, which has a Ring in the midſt to put a bit of Spunge into, which is to go into the Hole of the Roof of the Mouth. For this Spunge imbibing all the Humidities of the Mouth, cauſes the Silver Plate to apply it ſelf againſt the Roof of the Mouth, that it cannot be drawn out without a great deal of Pain. This Plate may be called the *Obturator* of the Palate. There is a Cartilage faſtned to the end of the Bones of the Noſe, which makes the tip of the Noſe capable of Motion.

The OPERATION.

Place the Patient in a convenient Poſture, and then taking a ſtick cut it flat and ſmooth, and wrapping it round with Cotton, introduce it with the right Hand into the Noſe to raiſe up the Fractured Bones which are depreſſed, obſerving to lay the Thumb of the left Hand on the Fractured Bone, that ſo raiſing it on the inſide, you may bring it to its Natural Figure; and when you have reduced one ſide, you may do the ſame on the other, if there be occaſion.

THE DRESSING. When the Bones are reduced, put a Leaden Pipe up the Noſtrils to keep them in their due Situation. This Pipe muſt be made flat, and of a Figure accomodated to the Part, that ſo there may be no danger of hurting it. Before theſe Pipes be put up into the Noſe, they ought to be anointed with *Balſam of Peru*, or *Oyl of Turpentine* mixt with Spirit or Wine, and to have two Ears or Rings on each ſide, that ſo they may be tied to the Patients Night-cap with Ribbons. When the Pipe is put up into the Noſe, lay two ſmall Triangular Compreſſes along on each ſide of the Noſe, and lay a Paſt-board of the ſame Figure on the Compreſſes.

If there be a Wound which can very hardly happen, lay proper Medicines on to procure a good Digeſtion, there being no poſſibility of avoiding a Contuſion, and an Emplaſter on the Pledgit, on which lay Compreſſes and a Triangular Paſt-board, keeping them on with a Sling or Fillet with four Tails. To apply this, take the two upper Tails with the Thumbs and Fore-fingers of each Hand, and apply the plain undivided part on the Noſe, and bring the two upper Tails behind the Head, and back again on the firſt turn, and pin them where they end, then take up the two lower Tails, and bringing them over the Head, pin them in the

the ſame manner as the firſt, and this is a general Rule in the applying all divided Fillets.

There is another Bandage ſometimes uſed when the Noſe is concerned, which is called the *Foſſa* of *Amyntas*. This is made with a Roller an inch and an half broad, and two Ells in length rolled up at both ends; you muſt begin to apply this behind on the top of the Head, and bringing the two ends of the Roller before, croſs them on the Noſe, and ſo bring them behind on the Nape of the Neck, and ſo again over the firſt turn, croſſing on the Noſe, continuing in this manner; and in the laſt place, making ſeveral Circular Turns on the Forehead, to fix theſe where they end. In making this Bandage, you muſt take care not to compreſs the Part too much, it ſufficing if it be ſtrait enough to keep the Applications on the Noſe.

There is a third Bandage which is ſometimes made uſe of in Fractures of the Noſe, which is called *Accipiter* or Hawk. To make this, take a Rag and cut it into the ſhape of a Triangle, which may be large enough to cover all the Dreſſings on the Noſe, and ſtitch a narrow Fillet about a quarter of an Ell in length, and three quarters of an inch broad to the upper Angle of this Triangle, and lay this Fillet over the Sagittal Suture, and let it hang down behind; then ſtitch two more to its lower ſide, *viz.* to each Angle, and bringing them over the Cheeks, tie them to that which paſt over the Sagittal Suture; beſides theſe ſtitch two to the bottom of the Triangle, which muſt be two Ells in length, and more than of an inch broad, and croſs theſe two under the Noſtrils, riſing obliquely on the Cheeks to the ſide of the leſſer Angle of the Eye. and ſo making a X behind the Head, bring them forward again, and croſs them on the Noſe; then bring the two ends round the Fore-head and pin them. This Triangle muſt have two Holes in the place of the Noſtrils for Breathing.

THE CURE. Dreſs the Part at leaſt once a day in the ſame manner as all contus'd Wounds, forbearing to draw the Pipes out of the Noſe till the Bones be conſolidated, and confining the Patient to a good Diet.

REMARKS.

If the Bones are not reduced, there is danger of *Oζæna's* and *Polypus's*.

CHAP.

CHAP. LXVII.

Of the Fracture of the lower Jaw.

THIS Operation is the *Reduction of the Fractured Bones, to their proper Situation.*

THE CAUSE. Fractures in this part frequently are occasioned by Blows and Falls.

Children till the Age of 7 years or thereabouts, have their lower Jaw compos'd of two Bones divided by a Cartilage, which in process of time is entirely Ossified. The Bone of the lower Jaw is very hard and smooth and externally convex resembling the Letter U. The Mandible or lower Jaw has four Holes, two Internal ones which are the largest, and two External ones which pierce its *Basis*, through each of the Internal Holes there passes a Rope compos'd of a Vein, an Artery, and a Nerve, the Nerve is a Ramification of the fifth Pair, and the Veins and Arteries of the Jugulars and Carotids. The Branches of the Nerves go out through the External Holes, and are spent on the Skin and Muscles of the Lips. All these Vessels are dispensed to the Roots of the Teeth of the lower Jaw, and carry Nourishment to them. The Bone of the lower Jaw has several Protuberances to which Muscles are affixed, these Extremities are flat and large. The lower Jaw has on each side two Processes, the one called *Condylus*, and the other *Corone*. The first serves for the Articulation, and has its Head arm'd with a Cartilage, and is received into a Cavity of the *Os Petrosum*, which is likewise armed with another Cartilage, which serves to facilitate their Motion. This Articulation is covered with a Ligament, the *Corone* is slender and acuminated, and into this the Tendon of the Temporal Muscle is inserted. All Blows on this Muscle are dangerous, and attended with bad Symptoms, it being covered with the Tendinous expansions of the Frontal, and other contiguous Muscles, and not with the *Periosteum* as is vulgarly, but erroneously thought.

In the Cavities of the Mandible the Matter is contained, out of which the Teeth are formed, and there are the Sockets in which they are set.

Of

Of the lower Jaw in the Fœtus.

The lower Jaw begins to Offifie in the ſecond Month, and is compos'd of two Bones joyned together below the Noſe, and jetting a great way out. In the third Month the Jaw is compos'd of four Bones, *viz.* two large ones joyned at the Chin, and two leſſer ones which form the *Corone*, and theſe two Bones are joyned together by a thin tranſparent Membrane.

In the ſeventh, eighth, and ninth Month, it appears all around the *Baſis* of the lower Jaw, as well as the upper of thoſe ſmall Protuberances, which are more apparent in the *Fœtus* than in Adults.

The inequalities are the Cells in which the Teeth are ſet, or at leaſt where they are firſt formed, and they leſſen in proportion to the growth of the Jaw. The Holes in the inner part of the lower Jaw through which the Veſſels which go to the Teeth paſs, are inviſible in a *Fœtus* of four Months old, but they are viſible in the ſeventh Month, as well as the external Holes which penetrate the Bone.

The OPERATION.

If the Bones of the Jaw ride over one another, ſome of the Aſſiſtants muſt put his Fingers into the Patients Mouth, and make a ſlight Extenſion whilſt the Surgeon preſſes the Extremities both within and without.

If the Teeth are looſe put them into their Natural place, where they will ſoon fix again if they be tied with a Silver Wire or a waxed Thread to thoſe Teeth which ſtand firm. The moſt certain way to find whether the Teeth are reduced, is by comparing the Teeth of the lower Jaw with thoſe in the upper, to obſerve if they anſwer exactly, *viz.* the Grinders to the Grinders, the Eye-teeth to the Eye-teeth, and the Fore-teeth to the Fore-teeth.

THE DRESSING. Lay on the Jaw a Compreſs of a competent length, and made of Raggs ſeveral times doubled, and dipt in ſome Defenſatives, and then cover this with a Paſt-board of a Figure not unlike the Jaw, and make the Bandage called the *Capiſtrum* or Bridle. To make this, take a Roller of two Ells long, and an inch and a half broad, and begin with a circular turn round the Head, then paſs under the Chin and riſe on the Cheek, paſſing near the leſſer

Angle

Angle of the Eye; then go obliquely behind the Head on the oppoſite Cheek and under the Chin, and reaſcend on the firſt turn of the Roller, making an Edging on the fractured Jaw, then continue to proceed round paſſing behind the Head.

Take a Roller rolled up at one end, which muſt be three Ells in length, and about an Inch and a half broad, and begin with making a Circular turn round the Forehead; then paſs under the Chin and reaſcend on the Cheek, paſſing near the leſſer Angle of the Eye, then turn obliquely behind the Head, and deſcend on the oppoſite Cheek paſs under the Chin, and reaſcend on the firſt turn of the Roller, leaving an edging on the Fractured Jaw, then proceed round paſſing behind the Head, over the Cheek, under the Chin, and make an edging on the Fracture, then reaſcend on the Cheek, paſs behind the Head, over the oppoſite Cheek, under the Chin, and make a third edging on the Fracture; then reaſcend and proceed over the firſt Turn, paſs behind the Head, bring the Roller over the Chin, and make two Circular Turns there, and finiſh the whole by making two Circular Turns with the remaining part of the Roller round the Forehead and Head, and in the laſt place pin the ends. In making this Bandage obſerve to make edgings on the Fracture, and in all the other parts to bring the Roller directly over the neather Turns.

If the Jaw be broke on both ſides, reduce it in the manner above deſcribed; and lay a Compreſs with a Hole in middle on it, to put the end of the Chin through, and ſo apply each end on the ſides of the Jaw reſpectively, over theſe ſtitch a Paſt-board of a Figure adapted to the Jaw, and perforated in the midſt likewiſe, and keep theſe on with the double *Capiſtrum* or Bridle, which is made in the following manner.

Take a Roller five Ells long and an Inch and a half broad. apply this to the Chin, and bring each end of the Roller over the Cheeks, and make an X on the top of the Head, then paſs it behind, and return on each ſide under the Chin and paſs over the Fractures, making an edging on each; then reaſcend circularly over the ſame turns of the Roller, and make an X on the Head, deſcend under the Chin and make edgings on the Fractures, then reaſcend over the Head, paſs behind, deſcend and paſs over the Chin, then reaſcend on the Cheeks and paſs over the Head, and ſo return and bring the two ends of the Roller twice over the Chin,

Chin, making Circular Turns there, then bring them behind the Head and ſo round the Forehead to keep the other turns ſteddy, and pin it where it ends.

But before I leave this Subject, I ſhall deſcribe another Bandage us'd in Hurts of the Chin in Children, which tho' it do not properly concern Fractures of the Jaw; yet can no where be better inſerted than here, it being my Deſign to give the Reader Inſtructions in all the ſeveral manners of Dreſſing and making Bandages which can be required in a Courſe of Operations.

Take a Roller ſix Ells long, and more than two Inches broad rolled up at both ends, and apply the middle of it on the Forehead, and pin it there to the Night-Cap, then bring the two Heads behind the Patients Head, croſs them there, and ſo bring them under the Patients Arm-pits, then bring them before and paſs them behind the Head, and croſs them again, and bring them over the Forehead, behind the Head, and croſs them, next bring them under the Arm-pits, and having firſt made two or three turns about the Breaſt, pin the ends.

In burns of the Face, make a Mask of Linnen Cloth, and having ſmear it with ſome proper Liniment, tie it behind the Head with Ribbons.

THE CURE. Let the Patient lie on his Back for fear leaſt the Bones ſhould be diſplaced by his lying on one ſide, and during the Cure, let his Diet be liquid and Nouriſhing.

The lower Jaw is moſt commonly re-united in twenty Days.

REMARKS.

Fabr. Hildanus, *Cent.* 1. *Obſ.* 81. gives a Caution not to continue the uſe of the *Lapis Oſteocolla* too long, leaſt it make too large a *Callus*, and the Part become Monſtrous and Deformed, as he relates it once hapned to him in a Fracture of the Thigh. A dram of this Stone is given to the Patient in a Morning faſting, being finely levigated in a Marble Mortar with *Comfrey Water*, but the Surgeon muſt from time to time look to ſee that the *Callus* do not encreaſe more than is convenient, and forbear any longer uſing it when he finds this.

When the *Callus* happens to grow ſo large as to make a ſenſible Deformity of the part, *Fabr. Hildanus* uſes this Method

thod to leſſen it. Firſt he foments the Part twice a day with this Emollient Decoction. ℞ *Roots and Leaves of Marſh-mallows, Bryony, White Lilies, Brank-urſin, Flowers* of *Melilot, Camomile*, ā. one Handful, *Common Wormwood, Red Roſes*, ā. half a Handful, *Linſeed, Fenugreek Seeds*, ā. ℥i. Boil theſe Ingredients in a Mixture of one part of *Vinegar*, and four parts of *Spring Water*, and foment the part with this Decoction; and after the Fomentation, anoint it with the following Liniment. ℞. *Mans, Bears* and *Ducks Greaſe*, ā. ℥ij. *Juyce of Earthworms* and diſtilled *Vinegar*, ā. ℥i. Mix theſe and make a Liniment, and with this anoint the *Callus*, and the whole Thigh. After all this he applied the following Emplaſter to the *Callus*. ℞. *Emplaſter of Froggs* with *Mercury, Emplaſter of the Mucilages*, ā. ℥i. Mix theſe and keep them on for the ſpace of ſix Days, in which time they will extremely ſoften and diminiſh the *Callus*. In the laſt place in ſtead of the Emplaſter, bind on a Plate of Lead pretty ſtraitly, till the Part recover its Natural Size and Figure.

CHAP. LXVIII.

Of the Fracture of the Clavicle or Collar-Bone.

THE Operation is *the Reducing the Bone to its Natural place.*

THE CAUSE is moſt commonly ſome Blow or Fall.

THE SIGNS. If the Clavicle be compleatly broke a croſs, that end which is fixed to the *Acromion* together with the whole Shoulder-blade ſinks, which is cauſed by the Weight of the Arm.

If there be any Splinters, a pricking and ſharp pain may be perceived; but if the *Fiſſure* be lengthways, it muſt of neceſſity become thicker, which may be ſoon diſcovered by comparing it with the ſound Clavicle. The Clavicles are two Bones which very much reſemble an *Italian f*, and are placed in the upper Part of the *Sternum*. The External Surface of theſe Bones is extremely ſmooth and polite, but their inner ſubſtance is ſpungy and porous, which is the Reaſon why they re-unite ſo ſoon when they are once fractured, whilſt on the other Hand they are very much expos'd to Accidents

Accidents, and ſoon broken, having nothing beſides the Teguments to protect them. At the ends of theſe Bones there are two Proceſſes, one of which is Articulated to the *Sternum*, and the other to the *Acromion* of the *Humerus*, and their principal uſe is to keep the Shoulder-blades in their Natural Situation.

Of the Clavicles of the Fœtus.

There are no Bones in a *Fœtus* which are ſooner Oſſified, than the Clavicles which are entirely Bony, within ſix Weeks after Conception. Nature ſeems to contrive this for the defending the Heart, to preſerve it from being compreſt by the *Sternum* and *Scapulæ*, which continue Cartilaginous for a long time.

The Clavicles are the largeſt and moſt ſolid Bones of the whole Body, till a *Fœtus* arrives at the third Month, and Age only adds largeneſs and ſtrength to theſe Bones, their Figure being altogether the ſame as in Adults.

The OPERATION.

If the Clavicle be broken, aſunder an Extenſion muſt be made. For this purpoſe place the Patient on a Stool without a back, and draw back the Arm which is on the ſame ſide with the Fracture, and let an Aſſiſtant ſtand behind and puſh the Shoulder up, whilſt another draws the Arm back: While this Extenſion is making reduce the Bones, by thruſting back that end of the Bone which is above, and drawing that below, ſo that both may exactly meet, and you may diſcover that they do ſo by feeling with the Thumb all along the Bone.

There is another way of making an Extenſion of the Clavicle, which is thus; put a Tennis Ball wrapt up in Linnen Cloth, and preſs the Patients Elbow cloſe to his Side. This makes an Extenſion of the Clavicle, to the end the Bone may be reduced with more facility.

Or let the Patient lie on his Back on a Quilt laid on the Floor, and lay ſome convex Body under him and between his Shoulders, and let both his Shoulders be thruſt down, that ſo the two ends of the Bone may be ſtretcht as far under as may be, and the Surgeon have an opportunity of reducing the Bone in the mean time.

If

If there be any Splinters which run into the Fleſh, mak. an Inciſion into the place which is pained, and lay the Bone bare to reduce the Splinters, and cut off the Aſperities which prick the Fleſh, with Pincers.

THE DRESSING. When the Bone is reduced, fill the Cavities above and below with Compreſſes of a length and figure ſuitable to the Bone, and over theſe Compreſſes lay others of the ſame Figure; let each Compreſs be ſtitched to a Paſtboard of the ſame Figure with themſelves, and keep theſe Dreſſings on with the Bandage called the *Capeline*. This is made with a Roller ſix Ells in length, and three Inches broad rolled up at one end, the middle of this is applied on the Clavicle, then bring one end on the Breaſt, and to keep that ſteddy, bring the other end obliquely behind the back, and ſo under the ſound Arm, and again forwards over the Breaſt, to fix that which hangs down over the Breaſt, and when this is done, bring it over the Clavicle and ſo behind the Back, and keep it ſteddy there; then bring the other end under the Arm affected, to fix that Head which paſſes behind; and when this is fixed, bring it again over the fractured Clavicle, obſerving every time it paſſes over the Clavicle, to leave an edging. In the laſt place, continue to make Circumvolutions with the Roller about the Body, paſſing one Head under the Armpits, and carrying up the other end over the Clavicle, till it be quite covered with the edgings; and when the Clavicle is cover'd, make ſeveral Circular turns round the upper part of the Arm, leaving a ſpace called the Cranes Bill, which at length muſt be covered by continuing the edgings on it with the two ends of the Roller, which in the laſt place muſt be circulated around the Breaſt, and then pin'd at the ends.

If the Clavicle be broke near the Shoulder, you muſt make the Bandage called the *Spica*, which the Reader will find deſcribed in the Chapter of the Luxation of the Shoulder-bone.

THE CURE. Let the Patient lie on his Back, for if he ſhould lie on one Side, there would be danger of the Bones falling out of its place. He may eat roaſted Meats or any thing which is eaſie of Digeſtion, and there is no neceſſity of Abſtinence, or being confined to a ſpare Diet, unleſs there be a Feaver or Inflammation. This Bone moſt commonly is united in 20 Days.

REMARKS.

Fab. Hildanus, Cent. 1. *Obſ.* 72. cenſures the Practice of thoſe who uſe Viſcous Meats, becauſe they are apt to generate a thick Chile, and create Obſtructions and Schirroſities in the Liver, Spleen, and other *Viſcera*, and the Stone in the Kidneys and Bladder, Dropſies, and an Univerſal Weakneſs; and theſe Accidents he aſſures us he had known befall ſome Perſons who had been Dieted in this manner.

CHAP. LIX.

Of a Fracture of the Shoulder-blade.

THE Operation is *the Reducing the Fractured part to its Natural Place and Situation.*

THE CAUSE. This like other Fractures, is occaſioned by ſome Fall or Blow.

THE SIGNS. If the middle of the Shoulder-blade be broke, the Bone which is very thin, there yields to the impreſſion of the Finger, and there is a great *Stupor* which proceeds from the Nerves diſpenſed to the Muſcles of that part.

The *Scapulæ* or Shoulder-blades are large flat Bones placed on the Back, one on each ſide, and have the Figure of a Scalenous Triangle, each Bone is concave on the inſide, and convex without, and has two ſides and Angles, one above and the other below, on the back-ſide is a long Ridge which is called the *Spine*, the parts adjacent to this, are called the *Supra Scapulium*, that above, and the *Infra Scapulium*, that which lies beneath the Spine. The large end of the Spine where it is crooked, is called its *Acromion*, and that ſide which is next the *Vertebræ*, is called its *Baſis*. This has two Angles, the one above, and the other below. In the *Scapula* there is a Cavity to receive the Head of the Shoulder-bone, and over this there is a crooked Proceſs, which has the Name of *Coracoides* given to it, from its reſembling a Ravens Bill. All the ſide below which bounds

the *Scapula*, is called its lower ſide, and the other are called its Borders or Edges.

The *Scapula* is faſtned to the Clavicle by ſeveral Ligaments. The Cavity which receives the Head of the Bone, is almoſt entirely formed by Ligaments which ariſe from the edge of the Cavity, and encompaſs the *Acromion* and *Coracoidal* Proceſs; and this is the reaſon why the Arm is ſo ſubject to Luxations, it having nothing more than Ligaments to keep it in its place, which with a very little ſtraining, may be forced out of its place.

The uſe of the *Scapulæ* is to defend the Ribs, help the Articulation of the Clavicles with the Bones of the Arm, and for the Riſe and Inſertion of Muſcles.

The OPERATION.

If any Fragments of Bones are broke off, and thruſt out without pricking the Fleſh, put them into their place with the Palm of the Hand, or the Thumb. But if they have any points and prick the Fleſh, make an Inciſion and ſnip off the Jagged end with a pair of Pincers, and reduce the Bone into its right place if it adhere to the *Scapula*, but if it be looſe take it off.

THE DRESSING. Lay a Compreſs dipt in ſome Defenſative Liquors on it, and a Paſt-board over that, both of which ought to be as large as the Shoulder-blade, and to have the ſame Figure, and then keep all on with the Bandage commonly called the Star. This is made with a Roller four or five Ells in length rolled up at one end; apply the Extremity of the Roller behind the Back under the oppoſite Arm-pit, then bring it under the other Arm-pit, and over the Shoulder, that ſo it may make an X on the middle of the Back, then bring it under the other Arm-pit, and laſtly over that, ſo it may paſs behind the Back and make another X leaving an Edging, and ſo bring it ſeveral times over the Back, ſtill leaving an Edging till both the Shoulder-blades are covered, and then finiſh the Bandage by making ſeveral Circular turns round the Breaſt.

THE CURE. If there be a contus'd Wound on the *Scapula*, you muſt digeſt and deterge the Wound, dreſſing it twice a Day in the uſual manner; but if it be a ſimple Inciſion, it muſt be united as ſoon as may be, and requires no more than ſome Defenſative to be applied on it.

If

If there be no Wound in the *Scapula*, it is beſt to continue the Dreſſings on till the Re-union is compleated, unleſs ſome Accident ariſing ſhall require the contrary.

REMARKS.

The *Scapula* in a *Fœtus* is round, and continues to be Membranous till the third Month, and then its Oſſification begins with a little white ſpot in the Center, which expands it ſelf by degrees. The Place of the Articulation of the *Scapula* to the Shoulder-bone terminates in an Angle, in the midſt of which there is a white Line which extends a little farther. This Line is the firſt beginning of the Oſſification of the Shoulder-bone.

The Spine on the Body of the *Scapula* is boney in the fourth Month, but the *Acromion* continues to be Cartilaginous at that time. The reſt of the Bone of the Shoulder is Membranous, as well as the *Coracoides* Proceſs, the Neck and above half the *Baſis* of the *Scapula* are. About the fourth Month the Neck of the *Scapula* begins to Oſſifie, but its *Baſis* and lower Angle continue to be Cartilaginous.

This lower Angle is more remote from the Center of Oſſification, and is longer before it be converted into perfect Bone.

The two Proceſſes of the *Scapula* and its *Glene*, and the Head of the *Humerus* continue Cartilaginous till the Birth, and for this reaſon Recent born Infants cannot raiſe up their Arm. The ſmall *Fiſſure* which is between the Coracoidal Proceſs, and the upper part of the *Scapula* is not diſcernible untill the fifth Month, but after it encreaſes, and by degrees becomes hollow, ſo that at the time of the Birth it reſembles a Creſcent.

CHAP. LX.

Of the Fracture of the Ribs.

THIS Operation is *Reducing the Ribs when they are broken, to their Natural Situation.*

THE CAUSE of a Fracture of the Ribs, is moſt commonly ſome Blow or Fall.

THE SIGNS. When a Rib is entirely broke, the ends ſometimes thruſt into the Breaſt, and at other times continue in their Natural place. If a Rib thruſts in it compreſſes and tears the *Pleura* and the Lungs ſometimes, and this creates a great Pain, and a conſtant pricking of the Part, the Patient cannot breath without great Pain and Difficulty, ſpits Blood, and a Feaver is kindled.

If the Fractured ends thruſt out, there is a ſenſible riſing, but if the two ends of the Bone continue together, none of the above mentioned Symptoms appear, and there is only a Craſhing that can be perceived in thruſting the Ribs with the Thumb.

The Ribs are placed on each ſide the Spine, and may well enough be compared to Segments of a Circle. Near the *Sternum* they are flat and large, and grow round in proportion to their diſtance, approaching to the *Vertebræ*. They are Articulated with the *Vertebræ* by two Productions, one of which is covered with a Cartilage, and implanted into the *Sinus*, and the other is joyned to the Tranſverſe Proceſs of the ſame *Vertebra* on the ſame ſide.

The Exterior Surface of the Ribs is rough and unequal, the Interior is ſmooth and equal. In their lower part they have a ſmall Channel for the Reception of the Nerve and Intercoſtal Artery with a Branch of the *Vena Azygos*, and the Surgeon muſt avoid cutting theſe Veſſels in the perforating the Breaſt in making the Operation in an *Empyema*.

The Ribs are entirely bony, but their Extremities toward the *Sternum* are Cartilaginous, for the better facilitating Reſpiration. They are fixed to the *Sternum* by their Cartilages, which ſometimes become bony, eſpecially in Women. The Number of the Ribs is not always alike no more than the *Vertebræ*; ſometimes there has been found thirteen, more rarely eleven, but the moſt common Number is twelve. Of

theſe

theſe, ſeven are called true Ribs, and five falſe or Baſtard Ribs.

The true Ribs are placed in the uppermoſt part of the Breaſt, and are fixed to the *Sternum*. The Baſtard Ribs are ſo called, becauſe they are ſhort, ſoft, and are not implanted into the *Sternum*; but adhere by the Cartilages to each other. The Baſtard Ribs leave a void place before, to make room for the Motion of the Stomach. The loweſt of the Baſtard Ribs is the ſhorteſt of all, and does not adhere like the reſt, but ſometimes is found adhering to the Diaphragm, as well as the eleventh Rib.

All the Ribs are unequal in length and breadth. The upper Rib is ſhort, flat, and more large and crooked than any of the reſt. The middle are longer and larger than the upper, and the inferiour are near upon the Matter of the ſame length as the upper, but not of the ſame breadth.

The Ribs make an Arch, which contains the Heart, Lungs, and other Organs of the *Thorax*, and beſides they ſerve to give a Riſe and Termination to ſeveral Muſcles of the *Thorax*.

Of the Ribs in the Fœtus.

The firſt and laſt Ribs in a *Fœtus* of two Months old are Membranous, and the other are Bony. About the ſame time the Sciſſure through which the Intercoſtal Artery, Vein, and Nerve paſs, begin to appear. The Ribs begin to Oſſifie very early, which is ſo ordered by the Providence of Nature, for the better defending the Heart, Lungs, and other *Viſcera* of the *Thorax*, which ſeem to want ſome ſuch Rampart to protect them, and give them liberty to grow and exert their reſpective Functions. For the two firſt Months the Ribs are not Articulated with the *Vertebræ*, but are only planted to a Cartilage, which after becomes the Tranſverſe proceſs of the *Vertebræ*.

In the third Month, as if Nature were aſhamed of her lazy proceeding, on a ſudden ſhe Oſſifies the upper Rib which becomes as hard, large, and ſolid as thoſe which were Oſſified in the ſecond Month. About this time the laſt begins likewiſe to Oſſifie, which nevertheleſs continues to be Cartilaginous till the fifth Month, but this ſeldom happens. The Ribs continue to encreaſe and grow hard from the ninth Month, till the Birth.

In a *Fœtus* the Ribs are crookt, and like ſo many Arches form a Vault, which is the Cavity of the Breaſt, beſides this there is another Curvature which is peculiar to the *Fœtus*, the ſix upper Ribs being crookt at the Extremity, and below in the middle. Theſe Curvatures are not ſenſible in Adults, and gradually diſappear as the Animal grows.

The OPERATION.

If the Rib which is hurt thruſt out, place the Patient in a Chair, and let an Aſſiſtant ſtand by to hold him; then bid the Patient bend his Body on the ſide oppoſite to the Fracture, and keep cloſe his Mouth and Noſe, and hold his Breath to dilate his Breaſt, this Dilatation ſerving in ſtead of an Extenſion, in the mean time thruſt the two ends of the Bone together and reduce it. If one end of the Bone enter the Breaſt, make an Inciſion and take it out.

Ambroſe Parrè propoſes this way, *viz.* to lay the Patient on the ſound ſide, and apply an Emplaſter of *Maſtich* on the Fracture, and then to pull it off with Violence, that ſo the Rib be drawn up with it; and by repeating this Operation, he pretends to raiſe the ends which were depreſſed.

Some Practitioners apply Cupping-glaſſes on theſe Fractures, pretending to draw up the Bone by the help of the Fleſh, which tumefies and riſes up into the Glaſs, but both theſe Ways are ineffectual.

THE DRESSING. Lay a ſingle Compreſs dipt in ſome Defenſative on the fractured part, and lay two other Longitudinal Compreſſes over it, which muſt croſs each other Salterwiſe; then ſtitch two Paſt-boards of the ſame Figure with themſelves, to the two laſt Compreſſes, and lay another large Linen Compreſs with an oblong Paſt-board, and cover this again with a Compreſs; in the laſt place keep all on with the Bandage called the *Quadriga*.

To make this, take a Roller five Ells long and three Inches broad rolled up at both ends, and apply the middle under the Arm-pit, and make an X on the Shoulder, then bring each end of the Roller over the Breaſt, and over the Back, ſo as to croſs under the Arm-pit and make another X on the Shoulder; then bring again the two ends of the Roller one over the Back, and the other over the Breaſt, ſo as to make an X before and behind, and leave edgings on the Breaſt with both ends of the Roller deſcending till it be covered,

covered, and then fix it by a Circular turn round the Breaſt.

Another ſort of Bandage may be made with a Napkin ſupported by the Scapulary, according to the Method delivered in the Operation of the *Empyema.*

THE CURE. *Fab. Hildanus* gives us the following Relation of his Proceſs in the Cure of an Accident of this Nature. A certain Perſon having broke two of his Ribs near the Spine, the ends of the fractured Bones thruſt out which he reduced, and after Embrocated the Part with *Oyl of Roſes*, next he applied a Cataplaſm made of *Flower of Barley*, *Powder of Roſes*, *Balauſtiums*, *Cypreſs Nuts*, *Galls*, *Tormentil* and one whole Egg, and then laid on Compreſſes, Splints, made the neceſſary Bandages not too ſtrait, and within a little time all the Accidents ceaſed. As ſoon as the Ribs were reduced, he gave the Patient a Decoction of *Self-heal* and *Water-creaſes*, ā. and confined him to a good Diet, the next Day he bled him, taking off the Dreſſings, and continuing to give him the forementioned Draught twice a day, for the ſpace of eight Days, and upon the twelfth he recovered.

REMARKS.

There did not appear any External Contuſion in the above mentioned caſe, but the Blood came away by the Stools abundantly in great Clods, and this Flux continued for ſix Days without ſenſibly weakning the Patient.

CHAP. LXI.

Of a Fracture of the Breaſt-bone.

THIS Operation is *a Reducing the Bones of the* Sternum *into their proper Situation.*

THE CAUSE of the Fracture is ordinarily ſome Fall or Blow received,

THE SIGNS which demonſtrate the *Sternum* to be fractured, are a Depreſſion of the Part, a Palpitation of the Heart, a Difficulty of Breathing, *Delirium*, and often times a ſpitting of blood. Theſe Symptoms proceed from a Compreſſion of the *Mediaſtinum*, Heart, Lungs, Nerves, and other Veſſels.

The *Sternum* makes up the fore part of the Breaſt, and is placed in the middle between the Ribs and the Breaſt, the forepart of which it compoſes. It is of a porous Subſtance, and all of one piece in Adults, but made up of diverſe ones in the *Fœtus*, as we ſhall ſee hereafter. It is a little forked in its upper part where it has a *Sinus* on each ſide to receive the Head of the Clavicle, which is Articulated with a Cartilage intervening. In its inner ſide there is a *Sinus* to give paſſage to the *Aſpera Arteria*. The *Sternum* ends in a point, and throughout its whole length has lateral *Sinus's* which receive the Cartilages of the Ribs. At its lower Extremity it has a Cartilage fixed into a ſmall Cavity of the *Sternum*, and this is called *Xiphoides*, from its reſembling a Dagget. It is ſometimes Triangular, and at other times it is forked, and ſometimes it is almoſt round; ſometimes its point turns in, and when this happens it compreſſes the Stomach, and occaſions Vomiting. ſometimes it is perforated, for the tranſit of ſome Veins which go to the Breaſt. This Cartilage in ſome Bodies has been found to extend to the Navil.

The *Sternum* ſerves as a Rampart to the Heart, and helps to ſupport the Breaſt and Ribs.

The Sternum of the Fœtus.

This is Cartilaginous till the fourth Month, and very rarely or never bony. The Number of bones in the *Sternum* of Children is not certain; ſometimes it is compos'd of ſeven, and

and ſometimes eight. Sometimes there is but four in a *Fœtus* of nine Months, and there is never more than ſix, and there are ſome *Fœtus* of five Months old, whoſe *Sternum* is compos'd of two bones only.

In the ſixth Month the *Sternum* is compos'd of four or five bones, and ſometimes there is no more than one. Some *Fœtus* of ſix Months have the *Sternum* Cartilaginous. In the eighth Month it is compos'd of four or five bones. In ſhort, it is impoſſible to determine any thing certain concerning the Number and Situation of the bones of the Breaſt; ſometimes the lower bones are larger than the upper ones, and ſometimes they are ranged by one another in Parallel lines.

The OPERATION.

Let the Patient be laid on a Quilt on the Ground, and place ſome convex Body under him between his Shoulders, and let ſome Servant preſs on the ſides of the Breaſt, which puſh out, that by this Extenſion the bones may be reduced into their Natural Situation; or if this prove ineffectual, make an Inciſion and lay the Fractured bone bare, that ſo you may raiſe it with the *Terebellum* or Screw. This muſt be exquiſitely ſharp, that it may enter the bone upon touching it in the lighteſt manner imaginable; for if it were quite depreſt, it would infallibly kill the Patient.

THE DRESSING. Lay a Triangular Compreſs wetted in Wine heated, and over that another thick Triangular Compreſs ſtitcht to a Paſt-board of the ſame Figure, and let the point of this be applied downwards; in the laſt place, keep the Dreſſings on with a Napkin folded in two or three pleats, ſuſpended with the Collar in the ſame manner as was directed in the Chapter of the *Empyema*, or you may uſe the *Quadriga*, deſcribed in the laſt Chapter.

THE CURE. Let the Patient lie on his Back, for if he ſhould lie on his Side, the Ribs would compreſs the bones of the *Sternum*, and if there be any Inflammation, which there ſeldom fails to be, let him loſe ſome blood out of his Arm, and feed him with a good Nouriſhing Diet.

If there be a Wound it muſt be dreſt twice a Day, as the Nature of it ſhall require.

REMARKS.

Some Surgeons have had Sagacity enough to diſcover when there has been *Pus* lodg'd in the Cavity of the *Mediaſtinum*, and have dextrouſly diſcharged it by opening the *Sternum* with a Trepan.

CHAP. LXII.

Of a Fracture of the Vertebræ.

THIS Operation is *a Reducing the Fractured bones into their uſual and natural place.*

THE CAUSE is ordinarily ſome Blow or Fall.

THE SIGNS. When the *Vertebræ* of the back are fractured, the Arm becomes Paralytick, and loſes both Senſe and Motion, the Patients Excrements come away involuntarily, and ſometimes a Suppreſſion of Urine enſues.

The Fracture of the Body of the *Vetebræ* is dangerous, becauſe the Spinal Marrow which is the Origin of the Nerves is hurt upon theſe occaſions. The Fracture of the Spinal Proceſſes is not ſo dangerous, as that of the Body of the *Vertebræ*, becauſe the *Medulla* is not hurt by it.

The whole number of *Vertebræ* make up one long Column of bones from the Articulation of the Head to the Rump-bone, and all this *Compages* is called the Spine, which name is given it from ſeveral pointed bones.

The *Vertebræ* derive their Name a *Vertendo*, becauſe the whole body is turned to and fro upon them.

The Spine has a Curvature inwards from the firſt *Vertebra* of the Neck to the ſeventh, and then is convex outwardly from the firſt *Vertebra* of the back to the twelfth, to enlarge the capacity of the Breaſt; then again it is as a curvature inwards from the firſt *Vertebra* of the Loins to the *Os Sacrum*, which is compos'd of ſeveral *Vertebræ* united together, and ſerves to enlarge the *Hypogaſtrium*, eſpecially in Women who are formed by Nature for the bearing of Children.

The

The *Vertebræ* mutually receive, and are received by each other, which *Species* of Articulation is called *Ginglymos*, and are bound to one another by Ligaments and Cartilages. There are for the moſt part ſeven *Vertebræ* in the Neck, twelve in the Back, and five in the Loins; and the *Os Sacrum* is compos'd of ſeveral *Vertebræ* more, all which form but one bone in Adults, which as the Child grows up leſſens, and ends in a point.

The *Vertebræ* are bound together by a ſtrong Cartilaginous Ligament. This Ligament hinders them from grating againſt each other, and by its flexibility yields to their Motion every way. The Spine is bended, extended, and turned round every ways. The whole Spine has a large Hole from the top to the bottom, to give paſſage to the Marrow, and in the Juncture of the *Vertebræ* on each ſide they form a Hole for the Tranſmitting Nerves from the Marrow.

Each *Vertebra* is compos'd of its body, and three ſorts of Productions or Proceſſes, *viz.* the Oblique, of which there are two Superiour, and two Inferiour, the Tranſverſe to which the Muſcles are fixed, and the third or Spinal ſeated behind in the midſt of theſe which are very ſolid, and give a Denomination to the whole Column. Beſides theſe, there are five *Epiphyſes* or Appendages to each *Vertebra*, two of which make the two edges of the *Vertebra*, two of the Tranſverſe Proceſſes, and one of the Spinal ones.

Thoſe who have a long Neck, moſt commonly have eight *Vertebræ* in it, and but eleven in the Neck, which leſſening the Cavity of the Thorax, makes ſuch Perſons Phthiſical, on the contrary, in ſhort Necks there is often but ſix *Vertebræ*, and ſuch are ſubject to Apoplexies. The Tranſverſe proceſſes are perforated for the Tranſmitting Veins and Arteries, and have their ends forkt for the implanting of Muſcles. The Tranſverſe proceſſes are likewiſe forked, ſhort, and a little inclined.

The firſt *Vertebra* of the Neck is called *Atlas*, and receives and ſupports the Head on two ſmall *Sinus's* lin'd with Cartilages. This *Vertebra* has no Spines, leaſt it ſhould hurt the two ſmall Muſcles called *Obliqui Inferiores*, when the Head is bound forwards. It has on its inner part a ſmall ſuperficial Cavity, which receives the Tooth-like Proceſs of the ſecond *Vertebra* of the Neck. At the lower part of the two Superiour Cavities, there are two ſmall round Eminences, from whence a Ligament like a Cord iſſues, which ſtrongly binds the Tooth-like Proceſs. The firſt *Vertebra* has

no

no more than ſix Proceſſes, but on its foreſide it has a ſmall Eminence which may be eſteemed a ſeventh.

The ſecond *Vertebra* is call'd *Dental* from its Tooth-like Proceſs which enters into the firſt. *Hippocrates* aſſures us, that the anteriour Luxation of this *Vertebra*, cauſes an incurable Quinſie. This is likewiſe call'd the *Axis*, becauſe its Tooth-like Proceſs ſerves as an *Axis* to the firſt *Vertebra*. The Superiour Oblique Proceſſes of this, are received into the Cavities of the firſt, and on this are made all the Rotations of the Head. The third *Vertebra* is not ſo tall as the ſecond, and its Spinal Proceſs is ſhorter. The fourth and fifth *Vertebræ* of the Neck, have their Spinal Proceſſes more inclined than the firſt. The body of the ſeventh is larger than any of the Superiour, and its Spinal Proceſs is long and roundiſh at the end, and is very like the Proceſs of the firſt *Vertebra* of the Back.

The twelve *Vertebræ* of the Back, are larger than thoſe of the Neck, but are not quite ſo ſolid, and are perforated by ſeveral Holes for the paſſage of Veſſels. The firſt is called *Criſta*, becauſe it reſembles the Creſt of a Helmet, which is not unlike that of a Cock. The ſecond is called *Axillaris*, becauſe it lies near the Arm-pits, the eight lower are called *Coſtales*, becauſe the Ribs are implanted to them. The Tranſverſe Proceſſes of the Back, are large, ſolid, round, at the Extremity, and a little crookt above. In each Tranſverſe Proceſs there is a ſmall Cavity, and another on the upper part of the Body of the *Vertebra*, to receive the two ſmall Condyls of the Ribs. The twelfth *Vertebra* differs in many reſpects; its Oblique Proceſſes are roundiſh both above and below, in ſuch a manner, that it is received by both Ribs for the ſmall Heads of the Oblique Proceſſes, enter the Cavity of the Superiour *Vertebræ*, and there is no Tranſverſe Proceſs on the twelfth *Vertebræ*, and the Motion of the Back is much freer on this twelfth *Vertebra*, than on any of the other; ſometimes there are thirteen, and ſometimes fourteen *Vertebræ* in the back of large Men, but moſt commonly eight, and very ſeldom eleven.

Of the Vertebræ *of the Loyns.*

Moſt commonly there are five *Vertebræ* in the Loyns, and ſometimes tho' ſeldom, there are ſix. The firſt is called *Renalis* from its Vicinity to the Kidneys. The *Vertebræ* of the Loyns are more large and porous than thoſe of the

the Back. Their Tranſverſe Proceſſes are ſtrait, long, ſlender, and parallel, reſembling ſo many ſmall Ribs. Their Spinal Proceſſes are ſtrait, flat, large, and roundiſh at the end. The Motion of the Trunk is principally made on the *Vertebræ* of the Loins. And ſince their Tranſverſe and Spinal Proceſſes are parallel, they cannot compreſs or grate againſt one another; on the contrary, there is but a ſmall ſpace between the Tranſverſe Proceſſes of the Back, and their Spinal Proceſſes are inclined to, and touch each other exactly.

Of the Os Sacrum.

This Bone is Triangular, concave within and convex without. It has ſeveral ſmall Holes which tranſmit the Nerves of the Spinal Marrow, and is joyn'd to the *Os Ilium* by a ſort of ingranure; it has ſeveral ſmall Proceſſes at its Extremity which make it uneven. In its lower part there is a ſmall Cavity, to which the firſt of the ſmall bones which compoſe the Rump is implanted. The *Os Sacrum* is compos'd of five, ſix, and ſometime ſeven *Vertebræ*, which are ſo united as to make up one large bone, which in its Figure appears like an Iſoſceles Triangle, and has ten large Holes, *viz.* five on each ſide, for Tranſmitting Nerves to the Thigh.

Of the Hanch or Hip-bones.

There are two bones of this Name, which are ſeated one on each ſide of the *Os Sacrum*. This bone is compos'd of three leſſer bones in the *Fœtus*, but in Adults it is but one diſtinguiſhed into three parts, the firſt of which is called the *Ilium*, becauſe it receives the *Ilion* into its Cavity. This part of the bone is large, and its Figure is almoſt ſemicircular, being a little convex and unequal in its ſurface, and ſomething concave in its inner. It is faſtned to the *Os Sacrum*, by a ſtrong Membranous Ligament, its Edge and Circumference is called its Spine, and it is expanded in Women more than Men, becauſe they are made to bear Children. The *Os Pubis* makes up the ſecond part of the Hanch-bones, and this has a large Oval Hole which is exactly ſtopt by a Tendinous Membrane, to which the *Muſculi Obturatores* are implanted, and in the upper part of the Hole there is an oblique Sinuoſity, thro' which the Spermatick Veſſels, and the Crural Vein and Artery paſs.

The

The third bone which compoſes the Hanches is called *Iſchion* or the Hip-bone, in which is the *Acetabulum* or great Cavity which receives the Head of the Thigh-bone. The *Iſchion* has three parts, its Spine on the ſides round the *Acetabulum*, a great irregular Proceſs call'd its *Tuber*; and laſtly, a *Sinus* between the Spine and the Tuberoſity, for the paſſage of the Obturator Muſcles.

Of the Vertebræ *of the* Fœtus.

The Spine of the *Fœtus* makes a Circle whilſt it is in the Mothers Womb, becauſe the Head moſt commonly is between the Knees, but when the Child is once born, it recovers its Natural Situation by being ſwadled in its Blankets.

The Spinal Proceſſes are wanting in the *Vertebræ* of the *Fœtus*, for theſe would be apt to tear the Membranes, and hurt the Mother in the Birth. The firſt Rudiments of the Spinal Proceſſes which are viſible, are certain, ſmall, red points which increaſe by degrees, but do not riſe to any height, while the *Fœtus* continues in the Womb. There are no Tranſverſe Proceſſes, and there are only Cartilages in their place which have a Hole on their ſides for the tranſmitting of the Veſſels. The Body of each *Vertebra* is made up of three ſmall bones, *viz.* the body it ſelf, and two other ſmall bones ſeated on the back part. Theſe two bones are divided by an intervening Cartilage; and beſides this, there is another Cartilage which ſeparates them from the body of the *Vertebra*.

In the third Month there are two ſmall bones which form the four firſt *Vertebræ* of the Neck, but their body is not bony ſo ſoon. The ſixth *Vertebra* of the Back begins to Oſſifie by its Body; the Oſſification of the *Vertebræ* riſing from below up to the fifth *Vertebra* of the Back, and deſcending to the third Bone of the *Os Sacrum*. In the fourth Month the bones of the *Os Sacrum* are bony quite to the Rump-bone. At that time the third or fourth *Vertebra* of the Neck is bony. The *Atlas* and the Dental *Vertebra*, as yet have no body. In the fifth and ſixth Month, there is a diſtinction of ſeveral Points in the *Os Sacrum* where the Oſſification begins; the body of the ſecond *Vertebra* of the Neck is entirely bony, its Tooth-like Proceſs is Cartilaginous, and the firſt *Vertebra* of the Neck, as yet has no body.

The

The Offification of the Tooth-like Proceſs of the ſecond *Vertebra* of the Neck, begins in the ſeventh Month, and there is a ſmall bony point as big as a pins Head on the Body of the firſt *Vertebra* of the Head. All *Vertebræ* begin to grow about the eighth or ninth Month.

Of the Os Sacrum *in the* Fœtus.

About ſix Months after Conception, the two firſt *Vertebræ* of the *Os Sacrum* are made up of five Bones, *viz.* the Body of the *Vertebra*, two Wings and two Bones, which derive their Origin from the Juncture of the *Os Sacrum*, with the *Oſſa innominata*. The three lower *Vertebræ* of the *Os Sacrum*, are made up of three diſtinct Bones, but in the ninth Month they are compos'd of five Bones, as well as the two upper *Vertebræ*.

Of the Oſſa innominata *of the* Fœtus.

In the tenth Month the *Oſſa innominata* are made up of one Membrane, whoſe Offification begins with a ſmall point, which appears near the *Acetabulum*. The *Os Ilium* becomes bony on the third Month, its Figure is Semicircular, and the Circumference of the bone is Membranous, as well as that of the *Pubis* and *Iſchion*. The Offification of the *Iſchion* begins in the fourth Month with a ſmall white point.

The *Os Ilium* is perfectly formed in the fifth Month, and at that time is pretty large, and the *Pubis* becomes bony on that ſide where it is joyned to the Cavity of the *Iſchion*. The *Iſchion* or Hip-bone, and the *Os Pubis* or Share-bones by their Junction, form a ſort of Box which receives the Head of the Thigh-bone, and this bone encreaſes until the ninth Month, at which time they are joyned by ſeveral large, ſoft, intervening Cartilages. This Tendinous connexion helps the Situation of the *Fœtus* in the Womb where it is round, and by yielding hinders the Child from receiving any hurt in the Paſſage.

The OPERATION.

Since the Spine cannot be fractured unleſs there be a Depreſſion of the Bone, place the Patient on his Belly, for the better making an Inciſion on the fractured place, and taking

taking out those Splinters which press or prick the Spinal Marrow and Nerves.

If only the Processes of the *Vertebræ* are broken off, place the Patient on his Back, and so reduce them as conveniently as you can.

THE DRESSING. If the Body of the *Vertebra* be hurt, lay on a Compress dipt in warm *Wine* or *Oxycrate*, and keep it on with the Napkin and Scapulary, the manner of applying which, you may find in the Chapter of the *Empyema*. Take care not to straiten the Bandage too much, for fear of pressing down the fragments of Bones which you have raised on the Spinal Marrow.

If it be the Spine of the *Vertebra* which is broke, lay a small Plate of Lead with a Compress on each side, to retain the Fractured Bone in its place, and lay over it a Compress dipt in some good Defensative, and keep this on with the Napkin and Scapulary.

THE CURE. When the Bones are reduced, let the Patient lie on his Side, and feed him with Meats of good Digestion, as Roasted Flesh.

If any Incision has been made to restore the Bones to their place, dress this like all other contus'd Wounds; that is, digest, deterge, and cicatrize it.

REMARKS.

Fabr. Hildanus, *Cent.* 1. *Obs.* 45. relates, that a young Man being Hunch-backt, and Asthmatick from his Cradle, died of a *Phthisis* at 16 years of Age. Upon opening of the *Cranium*, he found the *Crista Galli* very high, and so large, that it cover'd the whole *Os Cribrosum*, and all the small Holes being stopt, the *Ossa Plana* grew so high, as to extend to the *Septum Narium*, and he conjectures this last Accident was the cause of his Gibbosity, since the *Pituita* not being discharged by the Nose, must necessarily lodge it self towards the Spine; and for this reason the *Vertebræ* and their Cartilages by the constant Fluxion of this Humidity, must inevitably be relaxed and protruded out, and form this Bunch; all the *Vertebræ* of the Spine, *Os Sacrum* and *Os Pubis* being as soft as Wax. The sixth, seventh, eighth, and ninth *Vertebræ* were consumed by the *Caries*, especially the three last, of which nothing remained besides the exteriour Circle, and the parts which were missing, were found in the Lungs.

CHAP.

CHAP. LXIII.

Of the Fracture of the Rump-Bone.

THIS Operation is *a reſtoring the fractured Bones of the Rump, to their Natural place.*

THE CAUSE of a Fracture in this part, is moſt commonly ſome Fall.

THE SIGNS of a Fracture of the Rump, are a Suppreſſion of the Excrements, a *Paralyſis* of the Sphincter which proceeds from the *Coccyx* being depreſt by a Fall, and compreſſing the *Rectum* and its Sphincter, to which add the Extremity of the Pain.

The Rump-bone is placed at the Extremity of the *Os Sacrum*, and is compos'd of four or five ſmall bones, and two Cartilages joyned together, which form a ſort of a Tail crookt inwards. The firſt Bone of the Rump which joyns to the *Os Sacrum* is the largeſt, and has two ſmall Tranſverſe Proceſſes, and two more above them.

The Rump-bone keeps up the *Rectum*. This part often endures great pain in Womens Labour, becauſe the Child thruſts it very much back in the Birth.

The OPERATION.

To reduce a Fracture of the Rump-bone, put the forefinger of the right Hand up into the *Anus*, having firſt pared the Nail very cloſe, and then place the Fingers on the outſide on the Fracture, and by the help of both Fingers, put the Bone into its place. But obſerve here, that this Bone for the moſt part is rather luxated than fractured.

THE DRESSING. Put ſome Body in form of a Suppoſitory into the *Anus*, to keep the Fractured Bones in their right place after they are reduced, and lay on a Compreſs wetted with ſome Defenſative Liquour, and keep this on with the T, or double T, or the Fillet with four Tails and the Collar, which Bandages we have deſcribed in the Chapters of *Lithotomy*, and the *Fiſtula in Ano*.

THE CURE. Let the Patient lie on his ſide till the bone be re-united, and when he begins to ſit, let it be on a Chair with a Hole in the midſt, for fear of compreſſing the Bones.

REMARKS.

The Rump-bone is Cartilaginous in the eighth Month, and the two points in its inner part whence its Offification begins, do not appear till the Ninth Month.

The *Coccyx* in Men is ſometimes prolonged, and forms a Tail like that of other Animals, as *Diemerbroek* obſerves, who aſſures us, he had ſeen a New-born Infant with a Tail half an Ell in length; and if we may believe *Pliny*, there are Men with hairy Tails in the *Indies*.

Dr. *Harvey* in his Book of the Generation of Animals tells us, that one of his Friends who had been in the inland parts of the Iſle of *Borneo*, had ſeen Wild Men with Tails of a Foot in length.

CHAP. LXIV.

Of a Fracture of the Os Ilium.

THIS Operation is *Reducing the Fractured Bone to its right poſition.*

THE CAUSE of this Fracture is ſome Blow or Fall.

THE SIGNS. When the Spine of the *Os Ilium* is broke, there is a Stupor of the part which extends to the Leg, and proceeds from a Hurt of the Nerves which paſs that way.

The OPERATION.

If the *Os Ilium* be broke, and ſome Splinters of it run into the Fleſh, make an Inciſion and take them out, and ſnip off the inequalities of the Bone with a pair of Pincers, or reduce them into their proper place if they adhere to the Bone or *Perioſteum*. In making the Inciſion, take care not to hurt the Veſſels. If there be no Splinters, reduce the Bone in the moſt convenient manner with your Fingers.

THE DRESSING. Lay a large Compreſs dipt in ſome good Defenſative on the Bone, and keep it on with the Bandage named *Spica*, which is deſcribed in the Operation of the *Bubonocele*. This Bone is united in 25 or 30 Days.

RE-

REMARKS.

H. Arniſeus in a Letter to *Fab. Hildanus* extant in his *Cent.* of Epiſtles *Ep.* 45. tells him, That in Diſſecting the Body of a certain Woman after Labour, he found not only a Divulſion of the *Os Pubis*, but the *Oſſa Ilii* likewiſe were ſeparated from the *Os Sacrum*; and he pretends that the reaſon why the *German* Anatomiſts cannot find the Bones ſeparated in Women after the Birth is, becauſe they defer their Execution till the ſixth or ſeventh Week after their Delivery.

* THE CURE. Let the Patient forbear lying on the Fractured ſide, and let him uſe a nouriſhing Diet, eſpecially roaſted Fleſh.

CHAP. LXV.

Of the Fracture of the Shoulder-bone.

THIS Operation is *a Reſtoring that Bone to its proper place.*

THE CAUSE of the Fracture moſt commonly is ſome Fall or Blow.

THE SIGNS. The Fracture of the Shoulder-bone, may be perceived by a craſhing of the Bone, in moving up and down the Arm, and if the ends of the Bones do not meet, the Arm is diſtorted, appears ſhorter than the other, and the Patient endures a great deal of Pain.

The firſt Bone of the Arm is called the *Humerus* or Shoulder-bone, and is ſolid, long, and unequal, and has a Head in its upper Extremity, which is cover'd with a Cartilage, and received into the *Sinus* of the Head of the Shoulder-blade. This Bone has two Productions, the Exteriour of which is ſmall and arm'd with a Cartilage, and receives the *Radius* or leſſer Focil, the Inferiour has two *Sinus*, and reſembles a Pully, with which the Elbow or greater Focil is Articulated, and there is a ſmall *Fiſſure* on the fore-part of the larger Head of the *Humerus*, through which one head of the *Muſculus Biceps* paſſes, as a Rope on a Pully.

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* Fab. Hildanus *in his Reply to the Gentleman*, Ep. 45. *denies that he had ever known the former happen in the moſt difficult Births, and thinks the latter if true, happens but ſeldom, notwithſtanding his and* Bauhins.

Of the Bones of the Hand, or lower part of the Arm.

These Bones are two in number, the *Cubit* and the *Radius*. The *Cubit* or greater Focil is articulated with the *Humerus*, and has a large Process on that side, in the midst of which are two Cavities with an Eminence between them, which forms a sort of *Ginglymus*. The posteriour Process at the Head of the *Cubit* is termed *Olecranon*, and on this it is that a Man rests when he leans on his Elbow. The lower end of the *Cubit* is round and slender, and has a small protuberance from whence several Ligaments arise.

The Cubit has two sorts of Motions, *viz.* Flexion and Extension, and has one protuberance and two Cavities, for the Reception of the two protuberances of the Shoulder-bone. The jetting out of the Cubit is received in the Cavity of the Shoulder-bone, on which it turns after the manner of a Pully.

The *Radius* accompanies the Cubit but ends before it and is Triangular through its whole length. It has a small round Head in its upper part, at the end of which there is a Cavity for receiving the Bones of the *Carpus*, and on this the Motion of the Wrist is made. Besides this, there is another small Cavity which turns on the inferiour protuberance of the Cubit. When the *Radius* is turned inwards the Hand is directed by it, and this is termed Pronation; and when it is moved outward, the back of the Hand is turned down, and this is called Supination. The Cubit is thick in its upper part, and slender towards its lower; the *Radius* on the contrary is more slender above, and thicker below. The Cubit receives the *Radius* above in a small Cavity, on which the *Radius* is turned round, and below the *Radius* receives the Cubit. These two Bones touch at their extremity, and leave a space all along their middle, in which there is a a Membranous Ligament which connects one Bone to the other.

Of the upper and lower Bones of the Arm in a Fœtus.

In the second Month these Bones are entirely Cartilaginous, having only three white streaks in the middle of them. The uppermost, which is the beginning of the *Humerus*, is the longest, and those which form the Cubit and *Radius*,

dius, are ranged one againſt the other, and the middle of thoſe Bones is more ſolid than their extremities.

About the third Month the upper and lower Bones of the Arm are articulated together, and the Cubit and *Radius* which cohered before, begin to ſeparate in their midſt, and continue to touch only at their Extremity. About the ſeventh or eighth Month, the ſmall Protuberances and *Epiphyſes* are not diſcernible, but ſhortly after in the ninth Month, they become as viſible as they are in the Bones of Adult Perſons. The *Humerus* in the *Fœtus* is ſtrait, round, and long, but in Adults it is ſomething bent.

The OPERATION.

Place the Patient on a Stool, or let him ſit in his Bed, and let one Aſſiſtant take hold of his Arm above the Elbow with both Hands, and another ſtand behind and take hold of the upper part of it with both Hands, and let both of them draw together; and at the ſame time let the Surgeon bring the two ends of the Bone together, and adjuſt them by compreſſing the part around with the palm of his Hand, till he finds there is no inequality.

If after the Fracture the two ends of the Bones continue together, yet a ſlight Extenſion is neceſſary, for fear leaſt the Surgeon break off any of the *Aſperities* at the end in preſſing them to a Level. After the Bones are reduced, let the Aſſiſtants continue to hold the Arm, extending it a little till the Dreſſing be made.

THE DRESSING is made with a ſimple Compreſs dipt in ſome Defenſatives to prevent the Inflammation from extending it ſelf to the part. When this is laid on take a Roller above two Inches broad and two Ells in length, rolled up at one end, and with this make two circular turns about the Fracture, and bind the part ſtrait enough to keep the Bones in their proper place; then bring up the Roller aſcending lengthways of the Arm with little edgings, which muſt not be altogether ſo ſtrait as the turns about the Fracture, and when the Roller is ſpent, pin it at the upper end of the Arm. When this is done, take another Roller of the ſame breadth and length with the former, and begin to apply it on the Fracture, making three Circular turns about pretty ſtrait; but in this the turns of the Roller muſt be made to reduce thoſe Muſcles which the firſt turn had drawn a little aſide, then bring down the Roller to the bottom of

th: Arm leaving ſmall Edgings, and bring it over the Flexure of the Elbow, but not ſo as to bind the Joynt, then bring it up again leaving little Edgings, and pin it where it ends. After this, you muſt have four longitudinal Compreſſes of a competent thickneſs, and almoſt as long as the Part which is hurt, and each of theſe muſt be covered with a Paſt-board, or a very thin Splint made of a very thin Deal; in the next place take a Roller as before, but ſomething longer, and apply this near the Elbow, and make three Circular turns about the Fractured part, and ſo bring the Roller up to the top of the Arm, ſtill leaving Edgings; next bring it under the Arm-pit and about the Body, and ſo faſten it. Beſides this, you may if you pleaſe lay on two Paſt-boards of an equal length with the Part, and encompaſs the Arm with theſe, and tie them with three Ribbons, beginning with that in the midſt; and in the laſt place, ſuſpend the Arm with a Sling.

THE CURE. If the Patient keep his Bed which is moſt adviſeable for him to do, it will be ſufficient to repoſe his Arm half bent on a Pillow, without uſing any Sling at all. If it be not a complicate Fracture, the beſt way is to keep the Bandage on as long as may be; nay, not to undoe it at all till the cure be compleated, except ſome Accidents, as Pain, Inflammation, or Itching ſhall require it, or it ſlacken of it ſelf, and indeed the leſs any Bones are ſtirred, the ſooner they will unite. However the Patients Arm muſt be moved toand fro on the Joynt, for fear leaſt the Bones cement together, and the part loſe its Motion.

During the Cure, let the Patient be fed with Nouriſhing Meats, ſuch as roaſted Fleſh.

REMARKS.

Fabr. Hildanus, *Cent.* 2. *Obſ.* 46. tells us, that a certain Perſon of Three ſcore years of Age, had a Pain in the Articulation of the Right Elbow, for which he uſed no other Remedy beſides keeping his Arm ſtill in Bed, but upon riſing, endeavouring to draw on his Glove, he broke his Arm five or ſix fingers breadth above the Elbow, and upon removing the Dreſſings about three days after, there was found a ſecond Fracture near the Joynt it ſelf, notwithſtanding which, the Patient did poſitively deny that he ever had any Venereal Diſtemper.

The ſame Authour, *Cent.* 3. *Obſ.* 81. tells us, that a certain

tain very Aged Perſon having broke his Arm between the Wriſt and the Elbow, and having by reaſon of ill management a great Pain and Inflammation, with a conſiderable diſcharge of Matter which hindred the re-union of the Bone, had a *Callus* grew at each Extremity, which compos'd a ſort of Articulation, however the Patient could not move the Bone on it without the help of his other Hand.

CHAP. LXVI.

Of Fractures of the Bones of the Hand.

THE Operation is *the Reducing the Fractured Bones to their Natural place.*

THE CAUSE. Fractures in this Part moſt commonly are occaſioned by ſome Blow or Fall.

THE SIGNS. Fractures of this part are diſcovered by the Deformity, and by the craſhing of the Bones when they are ſtirred.

The Hand is compos'd of the *Carpus* or Wriſt, *Metacarpus* and the Fingers.

The *Carpus* or Wriſt is made of ſmall Bones diſpos'd in two Ranks, each of which conſiſts of four Bones. All theſe Bones are bound together by ſtrong Ligaments, and have a polite ſlippery Cartilage on them. The firſt Range of Bones jet out, and are received into the Cavity of the *Radius*, and on this Articulation all the Motions of the Wriſt are made. The ſmall Bones of the Wriſt are even without, and uneven on the inner ſide.

The four Bones of the *Metacarpus* are long, ſlender, and unequal in their length, they have Proceſſes above and below, and touch at their Extremities, leaving Spaces in the middle, which are filled by the *Muſculi interoſſei*. Theſe Bones are convex and ſmooth in the Palm of the Hand, and are ſomething concave inwardly, and ſomething of a a triangular Figure, they are ſtraitly bound to the ſecond range of the Bones of the Wriſt, and ſeem to make but one Bone with them. In there upper part they are articulated with the ſmall Heads of the firſt Range of Bones of the Fingers.

The five Fingers are each compos'd of three Bones which are convex, and ſomething hollow in the middle for the faſtning the Sheath-like Ligament, through which the Tendons

of the Flexors of the Hand paſs. The firſt Range of Bones in the Fingers, are articulated with the Bones of the *Metacarpus* by *Arthrodia*. The Bones of the Fingers are articulated by *Ginglymus*, and are fifteen in each Hand.

The OPERATION.

To make the Extention, let one Aſſiſtant hold the Patients Arm above the Wriſt, and another by the Fingers, and whilſt both draw it, take care to reduce the Bones into their place.

If the Fingers only are broke, reduce them ſeparately one after another.

THE DRESSING. If the Bones of the *Carpus* or *Metacarpus* only are broke, lay a Compreſs dipt in ſome Defenſative on the Fracture, and another pretty thick Compreſs in the Hand, making the Bandage called the *Half Gantlet*. To make this, take a Roller of four or five Ells long, and an Inch and a half broad rolled up at one end; then begin to apply it on the Wriſt, making three Circular turns about it; then bring the Fillet to the *Metacarpus* aſcending ſpirally, next bring it obliquely over the Hand, and then between the Thumb and Fore-finger, and ſo into the Hand, and then over it and make it croſs on the firſt turn, then make a Circular turn about the Wriſt, and bring it again over the Hand leaving an Edging; next make a turn round the Wriſt, and bring it over the Hand leaving an Edging, and proceed in this manner till the Hand be quite covered by the Edgings; then lay on a Compreſs ſtitcht to a Paſt-board on the Back of the Hand, and another on the inſide, both which muſt be of a Figure adapted to the part. Theſe Paſt-boards muſt be kept on with the Head of the Roller, by covering them in the ſame manner as the Hand, and when this is done, bring the Fillet ſpirally up the whole Arm leaving ſmall Edgings, and pin it above the Elbow, forbearing to cover that with the Circumvolations, as was noted in the Chapter of the Fracture of the Arm.

If the Fingers are Fractured each of them requires a particular Bandage, and muſt be bound ſtrait almoſt in the ſame manner as the Arm.

THE CURE. If there be no Wound, keep the Dreſſings on till the re-union be made, unleſs ſome accident require them to be removed, but if there be any, dreſs it after the manner practiſed in Contuſions.

CHAP.

CHAP. LXVII.

Of the Fracture of the Thigh.

THIS Operation is *a Reducing the two ends of the Fractured Bones to their Natural place.*

THE CAUSE of the Fracture is ſome Blow or Fall.

THE SIGNS. When a Fracture is near the Head of the Bone, it is very difficult to know it, and it is eaſily miſtaken for a Luxation; and for this reaſon not being reduced, the Patient continues lame all his Life-time; but if the Fracture be in its middle and the ends do not meet, there is a viſible Deformity and inequality, and the Patient cannot ſtand or ſtir his Thigh, and it is ſhorter than the other. When the ends of the Bones meet, a craſhing may be heard.

There is but one Bone in the Thigh, which is ſomething convex before and curve behind, and the Artiſt muſt have regard to this curvature, becauſe if the Bone ſhould be ſet ſtreight, it would be longer than naturally it ought to be and the Patient would become lame.

This Bone has a large round Head, covered with a ſmooth, ſlippery, Cartilage. This is received into the *Acetabulum*, and has a round Neck ſomething inclined. At the end in the Center of this Head, there is a Ligament which is fixed to the Center of the *Acetabulum*. Beneath on the hinder part of the Neck there are two Proceſſes, which from the uſe they have in the Rotation of the Thigh-bone, are called *Trochanthers*; the upper of theſe is larger and ſomething irregular, and is termed the greater, and the lower the leſſer; beſides theſe on the hinder part, there is a long Proceſs for the Implantation of divers Muſcles.

The lower part of the Thigh-bone is larger, and has two *Condyli* which are a little curve on the inſide. Theſe Protuberances are roundiſh at the end, and are covered with a large, ſmooth, Cartilage; there is a Proceſs between theſe two, and a large Cavity which receives the Protuberance of the *Tibia*, and makes a ſort of Hinge. At the bottom of the Thigh on the fore-part there is a ſmall Cavity, into which the *Rotula* is fixed. The Thigh-bone in the *Fœtus* continues Cartilaginous the ſecond Month.

The

The OPERATION.

Place the Patient on his Back, and let one Aſſiſtant take hold of the Thigh above the Knee, and another graſp its upper part, and let both theſe at once draw the Part ſtrongly to bring both ends of the Bone together; and whilſt they do this, let the Surgeon reduce them, and bring them to a level.

If the two ends continue together, yet ſome ſort of Extenſion is neceſſary, for fear of breaking off the extremities, and by this means hindring the Re-union of the Bone.

If the Fracture be near the Head of the Bone, there is no room to take hold of it, and therefore a Napkin muſt be put between the Parients Thighs, and one Aſſiſtant muſt draw this, whilſt the other takes hold of the Thigh a little above the Knee, and ſo makes the Extenſion. If this cannot be conveniently enough done with the Hands, the Surgeon muſt make uſe of Girths, or if theſe be not ſtrong enough, of Towels.

THE DRESSING. Wrap the Fracture round with a large ſimple Compreſs dipt in Wine heated, and lay a good Compreſs three quarters of an Inch thick all along the hollow part of the Thigh to preſerve its Curvature; for if it were ſtreight, it would be longer than it ought to be, and the Patient would be lame all his Life-time.

The Bandage muſt be made with three Rollers about three inches broad, rolled up at one end. The firſt Roller muſt be three Ells in length, and the ſecond four. The way of applying the firſt Roller is thus; Firſt make three Circular turns about the Fracture, then bring it up the Thigh ſpirally, leaving ſmall Edgings, and faſten it round the Body; when this is done, apply the ſecond Roller on the Fracture and make two Circular turns, and bring it down the Thigh ſpirally leaving ſmall Edgings, and ſo continue (without covering the Knee) to deſcend all along the Leg, and bring the Roller under the Foot like a Stirrup, and reaſcend up the Leg leaving ſmall Edgings, and pin it where it ends. If you pleaſe you may end below the Knee without proceeding farther; when this is done, apply a graduated Compreſs at the bottom of the Thigh, to keep it equal all along. In the laſt place, lay four longitudinal Compreſſes round the Thigh, and let each Compreſs be an Inch and a half broad, and almoſt as long as the Thigh

is

it ſelf, and cover each of theſe with a Paſt-board or a Splint of Deal, which muſt be very thin and pliant, and keep theſe Compreſſes on with the third and laſt Roller, in the applying which, you muſt begin beneath and riſe up by ſmall Edgings, and ſo embrace the Dreſſings together with two large Paſt-boards, which muſt be tyed with Ribbons, and not lie over one another. You muſt put a ſmall Soal with a Quilt under the Patients Leg to keep it right with the Toes up, and a ſmall Roll of Linnen under the Heel, provided it be not ſwoln; for in this caſe there is no need of it, and in its ſtead with a Napkin folded in three pleats, and rolled up at both ends, and lay this under the Leg to prevent the Heel from being compreſt; let there be one Ribbon ſtitcht to the end of the Bolſter, and another on each ſide to ſupport the Foot, and tie theſe to the Junks in which the Foot is laid.

Theſe are made in the following manner, take two ſticks as long as the Patients Leg and Thigh, and wrap them in ſtraw tying it round with a Ribbon, then Roll theſe two ſticks together with the Straw in which they are wrapt in a Cloth, and lay the Leg and Thigh together with the Dreſſings between them. Before you lay the Patients Thigh between the Junks, lay three Ribbons over, and as many under the Leg, and place the Junks on theſe. And obſerve here to make that Roll of Junks which lies on the out-ſide, at leaſt three Inches longer than that on the inner; before you tie the Junks, you muſt place a Bolſter on each ſide the lower part of the Leggs, about the Ancles, in the upper part of the Leg near the Knee, in the lower part of the Thigh above the Knee, and in the upper part of the Thigh under the Groin, that ſo all the hollowneſs and inequalities may be filled up, and the part may lie eaſily. Beſides theſe, lay a pretty thick Compreſs lengthways on the Leggs and Thighs. When the Junks are thus rolled up cloſe to the Leg and Thigh, begin to tie the Ribbon in the midſt, and ſo proceed to the reſt. The knots muſt be made on the out-ſide of the Junks, the Ribbon at the upper end of the Pillow muſt be tyed to that next the Knee, and the Ribbons which are on the ſide of the Pillow, muſt be brought a croſs each other, and pinned to the Roll of Junks about the middle of the Leggs; when this is all done, place the Leg on a Pillow with the Foot a little raiſed, and place a Cradle over it to keep off the Bed-cloths.

In

In the Hoſpital of the *Charite des Hommes*, they uſe Boxes matted within, and by this means they pretend to keep the Leg Stable and in a good poſture.

THE CURE. Let the Patient lie on his Back, to keep the whole Leg equally extended; and when there is a neceſſity of making the Patients Bed, let two luſty fellows place their Arms under his Buttocks, and ſupport his Body with their two other Hands, whilſt another puts both his Hands under the Dreſſing to lift up his Leg and Thigh, and then carry him to Bed or Table with a Quilt on it, and cover him whilſt his bed is made.

If there be no Wound, keep the Dreſſings on as long as may be without removing them, and feed the Patient with Meats eaſie of Digeſtion, as Fowl, Roaſted Fleſh, and good Broths.

REMARKS.

Avicen and ſeveral other Authors pretend, that the thigh can ſcarcely be ſo reduced, but that the Patient will remain lame, eſpecially if the Fracture be in the upper part, becauſe the Muſcles and Tendons are very ſtrong, and the Part is ſo Fleſhy, that a Bandage can ſcarce retain it.

In the *Miſcellanea Curioſa*, *Obſ.* 25. there is a Relation that a Woman of a good Habit of Body, and five Months gone with Child who broke her Thigh, and having care taken of it without any Succeſs, was at laſt delivered of a ſound Child, and in about a Month after, was perfectly cured of her Fracture.

Fabr. Hildanus, *Obſ.* 68. tells us, the Wife of a certain Senatour of *Bern* having broke her Leg, could by no means be cured till ſhe was delivered about 40 Days after. Theſe Obſervations ſhew, that in the time of Pregnancy, Nature imploys moſt of the Nutritious Juice in the perfecting of the *Fœtus*.

CHAP.

CHAP. LXVIII.

Of the Fracture of the Rotula.

THIS Operation is *the Reduction of the Bones of the* Rotula *into their Natural place.*

THE CAUSE of this Fracture is moſt commonly ſome Blow or Fall.

THE SIGNS. This Fracture is diſcerned by a Separation of the parts of the Bone. If the Fracture be Tranſverſe, the Muſcles ſometimes draw the Fragment pretty high under the Teguments of the Thigh. When this happens, there is great reaſon to fear the Patient will continue lame.

The *Rotula* is a ſmall round Bone placed on the Articulation of the Leg and Thigh, and is covered with a ſmooth Cartilage, which diſpoſes it for Motion. It is a little convex outwardly, and articulated by *Ginglymus*, and covered with Ligaments, and the Tendons of the Muſcles. This ſmall Bone ſerves as a Pully to the Tendons of the Muſcles which paſs over it.

The *Rotula* of the *Fœtus* in the Womb begins to appear on the fourth Month, and continues Cartilaginous till after the Birth.

The OPERATION.

If the *Rotula* be fractured tranſverſly, the upper part will be drawn up; and therefore to reduce it, place the Patient on his Back, and let ſome Aſſiſtants extend the Leg, and then bring downthe Bone,and with your Thumbs adjuſt it to that which remains below, and here obſerve never to take off both Thumbs together, for then the piece will infallibly fly out of its place.

If the *Rotula* be fractured lengthways, there is no need of making an Extenſion, becauſe the Bones do not ſtart far from one another, and it ſuffices to thruſt them into their place, and then make the Dreſſing.

THE DRESSING. If the Fracture be Tranſverſe, the way of Dreſſing it is in this manner; take a Roller of three Ells long, and about an Inch and a half broad rolled up at both

both ends, apply the middle of this Roller above the *Rotula*, and make two Circular turns, then bring it down under the Ham and croſs it there, then bring it beneath the *Rotula*, and make a Circular turn; next bring it up and let it croſs again below the Knee, then bring it up and make a Circular turn there, and continue thus bringing it up and down, and croſſing under the Knee, and making Circular turns above and below, till the Joynt be covered with the Edgings, and then pin the end of the Roller either above or below the Knee; when this is done, lay the Leg in the Junks in the ſame manner as was directed in the foregoing Chapter.

If the *Rotula* be fractured lengthways, take a Roller of about three Ells long, and two Inches broad rolled up at both ends, and having a ſlit in the midſt, apply the middle of this on the middle of the Fracture, and paſs one of the Heads of the Roller through the ſlit in the middle, ſo that this ſlit be in the middle of the *Rotula*; then draw the Roller pretty ſtrait to keep the parts of the Bone together, and cover the *Rotula* with ſeveral Circumvolutions, leaving all along ſmall Edgings; and laſtly, keep all ſteddy by ſeveral Circular turns about the *Rotula*; and when this is done, lay the Leg in the Junks.

THE CURE. Embrocate the contiguous parts with good Defenſatives, to prevent a Fluxion or Inflammation, and do not remove the Bandage till the Cure be perfected, or it ſlacken of its own accord, or ſome accident require it, and let the Patient feed on Roaſted Fleſh, or Nouriſhing liquids.

REMARKS.

Fabr. Hildanus. Cent. 5. *Obſ.* 88. relates, that a certain luſty Fellow of 40 years of Age, had a Tranſverſe Fracture of the *Rotula* with a great Contuſion, but no Wound. Though the Patient was treated according to the Rules of Art from the very firſt, yet nevertheleſs he was afflicted with great Pains, and ſeveral other bad Symptoms; and after theſe were removed, and the cure at length compleated he continued lame, his Thigh was very weak, he could not walk without a great deal of trouble, and had the greateſt difficulty in the World to lift up his Leg in going up any Aſcent.

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The ſame Authour relates the Hiſtory of a Captain who had his *Rotula* fractured by a Muſket-ſhot, upon which a great Inflammation and a *Melicerâ* enſued, which afflicted him ſo much as to obſtruct Digeſtion and ruin his Health, and after ſome time proved the cauſe of his Death. Theſe Inſtances Demonſtrate to us of how bad conſequence Hurts of the *Rotula* are.

CHAP. LXIX.

Of a Complicate Fracture of the Leg.

THIS Operation is *the Reducing the Bones into their Natural place.*

THE CAUSE of Fractures in this Part, are ſome Blow or Fall.

THE SIGNS. There is a viſible Wound, the craſhing of the Bones may be heard, and the Part is ſenſibly ſhorter than it ought to be.

If the *Tibia* only be broke, the other ſupports it and hinders it from jetting out; but if both Bones are broke, they very often ride on one another, and then the Leg is ſhorter than it ought to be.

There are two Bones in the Leg, the *Tibia* or larger Focil, and the *Fibula* or leſſer. The *Tibia* forms the fore-part of the Leg, and has a Protuberance at its upper end, which is received into the Cavity of the Thigh-bone. Beſides theſe, there are two long *Sinus's* which receive the Head of the Thigh-bone, which by reaſon of the Cartilages which line them appear very long. *M. Sanguerdius* has obſerved another *Sinus* in the fore-part lying between the two former, which are ſeparated by a prominence, at the Extremity of which, there ſprings a Ligament which is implanted into the Thigh-bone. This Bone is Triangular, and its anteriour part which is long and ſharp, is called its Edge or Spine; at its lower end it has a Proceſs which makes the internal Ancle; and in the laſt place, it is articulated with the *Aſtragalus* by *Ginglymus.*

The *Fibula* is much ſlender than the *Tibia*, and is placed in a manner behind the Leg; it has a round Head at its upper End, which terminates a little below the Head of the

the *Tibia*, but its lower end is extended below the *Tibia*. The *Fibula* is bound to the *Tibia* by common Ligaments.

The two Focils of the Leg ſpread from each other, and leave an interſtice in the midſt, which is filled with a large looſe Ligament, and ſome Muſcles which deſcend all along the Leg; and for this Reaſon in Amputation of the Limb, it is uſual to divide theſe by a ſharp, ſtreight Knife, to prevent the Accidents which might follow, if they were left to be torn by the Teeth of the Saw.

The *Tibia* continues to be Cartilaginous on the ſecond Month in the *Fœtus*, and the *Fibula* do's not appear diſtinctly at that time, but in the third Month they are bony and viſible enough.

The OPERATION.

Place the Patient on his Back, and let an Aſſiſtant take hold of his Leg above the Foot, and another below the Knee; and if both Bones are broke, and ride one over the other, let them make a ſtrong Extenſion, which is not required to be ſo great if one of the Bones remain entire, and then with both Hands bring the Bones even.

THE DRESSING. When the Bones are reduced, dreſs this like other contus'd Wounds, applying Pledgits with good Digeſtives, and laying on an Emplaſter, and a ſimple Compreſs over that wetted in Wine heated. When the Wound is dreſt in this manner, bind up the part with the Eighteen tail'd Bandage in this manner.

Take a large piece of Linnen Cloth as long as the part, and broad enough to go round it; when it is made up into three Pleats, cut this Cloth into three parts equal on every ſide, leaving about three inches plain and undivided in the middle to ſupport the Leg, and ſtitch it along the whole length of the undivided part. The ſeveral ranges of theſe Tails muſt be all gradually longer and ſhorter than each other, *viz.* the inmoſt ſhorteſt of all, the middle ſomething longer than that, and the outmoſt longeſt of all; when the Bandage is laid under the Leg lay a Compreſs under it to prevent the *Pus* from ſtaining it.

When things are thus prepared, apply the Tails on the Fracture, raiſing them one on one ſide, and the other on the other, and croſſing them, and ſo continue to raiſe the Heads of the firſt Range, next lay two Compreſſes on each ſide the Leg as long as it ſelf; then proceed to raiſe and croſs

croſs the ſecond in the ſame manner as the firſt, beginning with thoſe which lie over the Fracture; and in the laſt place, do the ſame with the third Rank, and make the remaining part of the Dreſſing with Junks, Splints, Boulſters, Soals, Pillows, and Ribbons, as was directed in the foregoing Chapter.

THE CURE. Dreſs the Fracture twice a Day, in the ſame manner as contus'd Wounds which require Digeſtion. Take care to cover the Bone if it lie bare with dry Pledgits, not ſuffering the Wound to cloſe until the Bone be exfoliated, confine the Patient to a regular Diet, and then Digeſt, Deterge, and Cicatrize after the uſual manner.

REMARKS.

Kerkringius, Obſ. 58. tells us, that a certain young Man of 20 years of Age having received a blow by a Horſe on the *Tibia*, and his Surgeon not imagining the Bone to be affected healed the Wound, but about 20 years after it broke out again in the ſame place, and part of the *Tibia* exfoliated. Some few years ſince, there was a Man in the *Charite des Hommes* at *Paris*, who had an Ulcer on the *Tibia* with a Cariofity of the Bone, in which there was an Artery of the Marrow which had a ſenſible Pulſation.

CHAP. LXIX.

Of a Fracture of the Bones of the Feet.

THIS Operation is *a Reducing the Bones of the Feet to their Natural place.*

THE CAUSE. This kind of Fracture can ſcarce happen, without ſome heavy thing falling on the part, or ſome violent Blow.

THE SIGNS. A Fracture of theſe Bones may be diſcovered by the great Contuſion, Deformity, Depreſſion, and craſhing Noiſe, which may be heard upon ſtirring the Part.

The Foot is compos'd of the *Tarſus*, *Metatarſus* and Toes. The *Tarſus* is made up of ſeven Bones, three of which are termed *Cuneiformia*, becauſe they are crowded like ſo many

Wedges between the reſt; the four other are called *Aſtragalus*, *Calcaneum*, *Scapha*, and *Cuboides*.

The *Aſtragalus* is a large irregular Bone, which is covered with a ſmooth Cartilage in the place, where it is united to the *Tibia* by *Ginglymos*. It is ſeated between the two Ancles, and has a Cavity below which receives the Protuberance of the *Calcaneum*, and in its fore-part it has a roundiſh Protuberance which enters into the Cavity of the *Scapha*. The *Calcaneum* is the largeſt of all the Bones of the *Tarſus*, the Body is ſupported on it in Walking. and its Name is derived from its uſe. It is larger behind than where it is joyned to the *Cuboides*. The *Scapha* or *Os Naviculare*, derives its Name from its reſembling a Boat, and is more even without than within; it has a Cavity which receives the Protuberance of the *Aſtragalus*, and is joyned before to the three *Oſſa Cuneiformia*.

The *Cuboides* derives its Name from its Figure, though its ſix ſides be not equal; it touches the *Calcaneum* the *Naviculare* the *Cuneiformia*, and the laſt bones of the *Metatarſus*.

The three Bones of the *Tarſus* are unequal, and more cloſely joyned without than within, and are connected to the *Naviculare*, and three firſt Bones of the *Metatarſus*. All the Bones of the *Tarſus* are cloſely articulated, and bound together by Ligaments and Cartilages, as in ſuch manner, that the *Tarſus* ſeems to be only one piece.

The *Metatarſus* which makes the ſole of the Foot, is compos'd of a Range of five Bones, which are ſmooth and convex outwardly, and ſlender at that end where they are Articulated with the firſt Range of the Bones of the Fingers, on the inſide they are curve, and by this means adapted to receive the Tendons of the Muſcles. Theſe Bones have Proceſſes both above and below their Articulation, with the Bones of the *Tarſus* which is very cloſe, and the *Muſculi Interoſſei* lie between them.

There are fourteen Bones in the Toes, the great Toe having two, and each of the reſt three Bones. The firſt Range is longer than the reſt, and their Structure and Articulation is the ſame with the Fingers, except in this, that they are ſhorter than the latter.

The *Metatarſus* and Toes form a Cavity under the Soal of the Foot, where the Tendons of the Muſcles paſs, and this Cavity hinders them from being compreſſed in Walking.

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The OPERATION.

Place the Patient on a Stool or on his Bed, and if the *Tarſus* or *Metatarſus* be fractured, let two Aſſiſtants make the Extenſions, one having hold of the end of the Foot, and the other of the Heel and the lower part of the Leg, and then reduce the Bones.

The Toes are to be managed in the ſame manner as the Fingers in the Hand.

THE DRESSING. Since there is a Wound ever in a Fracture of the Foot, it muſt therefore be dreſt like all other Contuſed Wounds, that is, digeſted not with greaſie Unguents which are apt to rot the Tendons, but Spirituous Applications, as *Oyl of Eggs*, *Oyl of Turpentine*, &c. Firſt lay on Pledgits, and then a ſimple Compreſs around the Foot dipt in ſome Defenſative Liquour; and laſtly, make the following Bandage.

Take a Roller between two or three Ells long, and an Inch and a half broad rolled up at both ends, begin with making a Circumvolution about the bottom of the Leg, and then croſs on the bottom of the Foot; then bring it under the Foot and croſs again, and return over the Foot croſſing, and proceed to the end of the Foot in the ſame manner. (Theſe Turns of the Roller leave Lozenge-like ſpaces, which has occaſion'd this Bandage to have that Name given it) from the end of the Foot return to the Heel, bringing the Roller up and covering the Foot with the Edgings, and then faſten by ſeveral Circumvolutions about the Leg after the Bandage is made, lay the Leg in the Junks, as directed in the Chapter of the Fracture of the Thigh.

THE CURE. Dreſs this in the ſame manner as contus'd Wounds, and confine the Patient to a Regular Diet.

REMARKS.

Fabr. Hildanus, *Cent.* 2. *Obſ.* 47. relates, that a certain Perſon attempting to leap over a Ditch when the Ground was frozen, wrenched his Foot ſo violently, as to force the *Talus* and *Aſtragalus* out of their place, and break the Ligaments which bound the Bones together, which forced him to take off the Foot.

Wedges between the reſt; the four other are called *Aſtragalus*, *Calcaneum*, *Scapha*, and *Cuboides*.

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The OPERATION.

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The Toes are to be managed in the ſame manner as the Fingers in the Hand.

THE DRESSING. Since there is a Wound ever in a Fracture of the Foot, it muſt therefore be dreſt like all other Contuſed Wounds, that is, digeſted not with greaſie Unguents which are apt to rot the Tendons, but Spirituous Applications, as *Oyl of Eggs*, *Oyl of Turpentine*, &c. Firſt lay on Pledgits, and then a ſimple Compreſs around the Foot dipt in ſome Defenſative Liquour; and laſtly, make the following Bandage.

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THE CURE. Dreſs this in the ſame manner as contus'd Wounds, and confine the Patient to a Regular Diet.

REMARKS.

Fabr. Hildanus, Cent. 2. *Obſ.* 47. relates, that a certain Perſon attempting to leap over a Ditch when the Ground was frozen, wrenched his Foot ſo violently, as to force the *Talus* and *Aſtragalus* out of their place, and break the Ligaments which bound the Bones together, which forced him to take off the Foot.

CHAP. LXX.

Of Luxations in General.

THeſe kinds of Operations, *are the Reducing of the Bones diſlocated, into their Natural place.*

THE CAUSE. Luxations moſt commonly are cauſed by ſome Blow, Fall, or other External Accident; but ſometimes likewiſe they proceed from the too great Humidity and Relaxation of the Ligaments and Tendons of the Muſcles, which are not firm enough to keep the Part in its place. Sometimes that Mucilage which Nature furniſhes the Joynts with to lubricate and make them ſupple, is condenſed and coagulated by Acids, and becomes of the Conſiſtence of Plaſter; and this filling up the Cavity, thruſts the Head of the Bone out of its place.

Sometimes the Head of the Bones, and the contiguous Nervous parts are united and cemented together by a certain glutinous Matter, and this is more dangerous than ſimple Luxations.

THE SIGNS. If a Diſlocated Bone be compared with its oppoſite which is in its proper place, (beſides the loſs of its Motion) the Part will appear very different in its Length, Figure, and Poſition.

Luxations are perfect when the Head of the Bone is entirely out of the Cavity, or Partial when it is only ſo in part.

The Diſlocation of the Thigh is the moſt difficult to reduce, and that of the Heel-bone the moſt dangerous. The Thigh-bone has a ſtrong Ligament which connects its Head to the *Acetabulum*, and cannot be diſlocated except this be broke ſome violence, or very much relaxed, and when this happens, it can never be re-united, and the Bone lies ſo deep and is cover'd by ſo many Muſcles, that the Virtue of Medicines cannot reach it, and the Patient muſt unavoidably continue lame all the reſt of his Life. Children often eſcape more eaſily than Men, which happens from the great Repoſe they take.

The Danger in a Luxation of the Foot, proceeds from the numerous Bones and Tendons in that part; but this is a caſe which very ſeldom happens. There is a great Pain, and ſometimes a Convulſion happens in reducing theſe parts which proceeds from the acute Senſe of the Tendons which are diſtended and torn. Though the Hurt be ſmall the

Part

Part is inflamed, but if it be great there ſpring up *Fungus's*, and the Patient is often convulſed.

Authors pretend there are but theſe three Luxations which are Mortal, *viz.* That of the Spine, that of the lower Jaw when it is perfect, and that of the Head with the firſt *Vertebra*.

The Luxation of the upper *Vertebræ* are very dangerous, becauſe they compreſs the Spinal Marrow, and by this means intercept the Animal Spirits.

Imperfect Luxations are more eaſily reduced than compleat ones, becauſe the Head of the Bone is on the edge of the Cavity, and do's not require ſo much pains to bring it in.

In Luxations which proceed from a Relaxation of the Ligaments, it is eaſie enough to put the Bone into its place, but very difficult to retain it there.

The Articulation of the Arm with the *Scapula* and Wriſt being very lax, thoſe Bones are eaſily diſlocated.

Luxations in Women, Children, and lean Perſons, are reduced with much greater eaſe than in luſty Men.

When the Ligaments are broke, the Luxations are incurable.

When a Bone has but one Head, it is more eaſie to reduce it, than if it had two.

If Luxations be of long ſtanding, it is difficult to reduce them becauſe the Ligaments grow hard; the Cavity is filled up as well as the Paſſage, by which the Bone ſhould be brought into its proper place.

Luxations with Wounds are more dangerous and difficult to reduce than ſimple ones, which is occaſioned by the Accidents which attend them.

In Luxations where the Edges of the Cavity are broke, the Bone being reduced, ſoon falls out again.

The OPERATION.

In imperfect Luxations, or ſuch as proceed from a Laxity of the Ligaments; the part muſt be drawn as little as may be, becauſe in imperfect Luxations, the Head of the Bone is not far out of its Natural place, and when the Ligaments are relaxed, they eaſily give way.

The Bone muſt be drawn till the Head be near the Cavity, giving it ſeveral little turns on one ſide and another, as

occaſion requires, and when the Head is on the Edge of the Cavity, guide it in.

Obſerve here always to bring the Bone in the ſame way it ſlipt out, and if the Part be inflamed, that muſt be ſomething abated before the Reduction, leaſt the Patient be convuls'd.

The Extenſion muſt be greater or leſs as neceſſity requires, or the Patient can endure it.

THE DRESSING. After Reduction, keep the Part in its place with a proper Bandage, uſing a Scarf if it be the Arm, Junks if the Leg or other proper Machines in the reſt of the Body.

The Bandage muſt not be too ſtrait, for fear leaſt the Blood-Veſſels and Lymphaticks be compreſt, and cauſe a Tumour, on the other Hand it muſt not be too ſlack, for fear leaſt it be not ſufficient to keep the part in its place, and a new Luxation happen.

THE CURE. If an Inflammation proceed from the ſtraitneſs of a Bandage, it requires ſuch internal Medicines as promote the Fluidity and Motion of the Blood, and ſuch External Medicines as diſperſe the Inflammation.

If the Luxated Part be inflamed, you muſt not attempt to reduce it till the Inflammation be abated, becauſe it is incapable of neceſſary Extenſion, and the Pain may cauſe a Mortal Convulſion.

To prevent Inflammation, foment the part which is reduced with a Decoction of the tops of St. *Johns wort*, *Camomile*, Tapſus Barbatus, *Roſemary*, Stœchas Arabica, and dip the Rollers in that Liquour; this Fomentation hinders the Stagnation of the Blood, prevents Inflammation, and reſtores the Natural Springineſs of the Fibres.

There is very often Oedematous Tumours on the Part which is Luxated; for the diſperſing of which, internal Sudorificks are uſeful in conjunction with very penetrating Volatil Oyls. For this purpoſe, Liniments made with Diſtilled *Oyl of Tartar* and *Humane Bones* are excellent.

The following Emplaſter is an excellent Diſcutient. Take *yellow Wax* and very *fine white Roſin*, Melt theſe and put a little *White Amber* and *Gum Elemi* of each a ſufficient quantity to form a Maſs, incorporate theſe with *Balſam of Peru*, and make an Emplaſter which is to be laid on the Fractured part; the two edges of the Emplaſter muſt not touch each other, by reaſon of the ſwelling of the Luxated Part. The contiguous Parts muſt by no means be embrocated, except

it

it be with *Oyl of Turpentine*, becauſe all Oleous Medicines ſtop the Pores hinder Perſpiration, and relax the Parts inſtead of conſtringing them.

You muſt likewiſe forbear the uſe of Aſtringent Cataplaſms which ſhut up the Pores, and cauſe a Tumour of the Part. It is better for this purpoſe, to uſe Decoctions made of the Nervous Plants in Wine.

If the Luxation proceed from a Hard, Plaſtry Matter, which by degrees has thruſt the Bone out of its Cup, Diſcutient, and attenuating Medicines are required to diſſolve the indurated Matter. The Internal ones are ſuch as mortifie the Acid, as the *Volatil Spirit of Tartar*, the *Volatil Spirit and Salt of Human Bones*, with proper Laxatives and Sudorificks premiſed. The External Diſcutients may be ſuch as diſſolve the *Coagulum*; as *Balſam of Peru* mixed with *Spirit of Wine*, or diſſolved with the *Yolk of an Egg*, with a little *Spirit of Ginger*. *Spirit of Earthworms* is ſtill better. *Oyl of Tartar* is very proper to reſolve the *Coagulum*.

If the Reduction of a Bone be too long deferred, a *Coagulum* is formed, which hinders it, and muſt be firſt diſſolved by following Remedy. ℞. *Diſtill'd Oyl of Humane Bodies*, p. 1. the *Fœtid Oyl of Tartar*, p. 11. Mix theſe and put *Quick-lime* over them, then diſtill with a Retort, and rub the Part with this Oyl which is very penetrating.

If the Luxation proceed from a Relaxation of the Ligaments, internal Sudorificks are good, and externally Diſcutients, Aromaticks, Aſtringents, mixed with *Nervine Medicines*, the Wounded part in a due State. *Crollius's* Styptick Emplaſter mixed with *Oyl of Tartar*, and *Oyl of the Philoſophers* ſpread on Glove Leather and applied on the Part, is very proper.

If the Bone be Diſlocated and Fractured, theſe Miſchiefs muſt be both remedied at once, and proper Extenſions and Bandages made for each, as they ſhall happen to require.

REMARKS.

Fabr. Hildanus, *Cent.* 2. *Obſ.* 90. tells us, That a certain young Maid having wrenched her Foot without any Diſlocation, did for ſome Days walk on it without any very great trouble. But neglecting it the Pain increaſed ſome ſmall time after, and the Part became tumefied and inflamed; upon this a Mountebank was ſent for, who having violently hall'd and twiſted about the Part, applied an Aſtringent Ca-

taplasm made of *Bole Armoniack*, the *Four Meals*, the white of an *Egg*, and made a very strait Bandage, without purging her Body before the Operation; this occasioned the Pain to encrease, and there was a Fluxion on the Part, attended with a continual Feaver, *Delirium* and Restlessness. After some time an Abscess which was formed in the Part broke, and several carious Bones were thrown out, and the Patient continued lame all her Life after.

This Instance plainly demonstrates, of how dangerous consequence it is to neglect Wrenches and Luxations, or to torment the Patient while the Part continues pain'd and Inflamed.

CHAP. LXXI.

Of a Luxation of the Bones of the Cranium.

THIS Operation is *a Re-uniting the Bones of the Skull when they happen to be separated.*

THE CAUSE. This Distemper arises from an excessive Moisture which renders the Bones lax and yielding, (especially if the Sutures are not close) or too great a quantity of Blood passing through the Vessels of the *Dura Mater*, which incessantly beats on the Bones of the *Dura Mater*, and at length forces them quite asunder. The Famous Mounsieur *Pascal*, had the bones of the *Cranium* separated from one another, about three years before he died, which perhaps might proceed from abundance of Spirits employed, by his continual and intense thinking.

THE SIGNS. This Malady is visible, the Distance of the Bones may be perceived, and the beating of the Brain may be felt by laying ones Hand on the Patients Head, the Teguments giving way.

The OPERATION.

This is bringing the Bones together, by compressing them with the Palm of the Hand, and then keeping them together by some convenient Bandage.

THE DRESSING. Cut off the Patients Hair, and lay a Compress dipt in *Spirit of Wine*, or some other Discutient and

and Spirituous Liquour, and make the Bandage called the *Capeline*, to bring the Bones together by degrees.

To make this, take a Roller about an inch and a half broad, and four or five Ells in length rolled up at both ends, and begin to apply it on the middle of the Fore-head, then bring the two Heads of the Roller behind the Head and croſs them, and engage one end of the Roller by paſſing the other over it; then raiſe one end of the Roller and bring it over the Sagittal Suture quite to the middle of the Fore-head, and there engage it with the other Head of the Roller, which you muſt bring over the Fore-head; then raiſe the Roller and bring it over the Head making an Edging on the firſt turn over the Sagittal Suture; and then bring it down behind the Head, and engage it by the other Head, with which you muſt continue to make Circular turns round the Head, while you raiſe the other end, making Edgings alternately on each ſide of the Head till the whole be covered. In the laſt place, bring the two ends of the Roller round the Read paſſing round over the Fore-head, and pin it at the ends.

THE CURE. Soak the Dreſſings every day in *Red Wine*, *Spirit of Wine*, or ſome ſuch Spirituous and Reſolvent Liquour, to promote the Tranſpiration of the watry Matter, and let the Patient uſe a drying Diet, forbearing all intenſe thinking; let him keep his Mind gay, and purge with *Hydragogues*, as *Scammony*, *Jalap*, or their *Roſins*. When the Bandage ſeems to ſlacken, from the Bones approaching to each other, it is time to undoe it, and bind the part up again.

REMARKS.

This is a Diſtemper which rarely happens, however the Famous Monſieur *Paſcal*, a Name well known in the Learned World, had ſuch a Disjunction of the Bones of the Head, that the Motion of his Brain could be felt by applying the Hand on his Head.

Fabr. Hildanus, *Cent.* 2. *Obſ.* 7. tells us, that a Robuſt fellow of 40 years of Age who never had been ill, was ſeized with a continual Feaver. In the beginning he neglected all Methods of cure, which proved of ill conſequence to him, depriving him of Sleep, and throwing him into a *Delirium*. Upon the ſixth or ſeventh day the Coronal and Sagittal Suture ſeparated, and the Motion of the Brain might

might be felt by laying ones Finger on the Interſtice of the Sutures. Upon the ſeventh day the Patient had a profuſe, critical, ſwear, tinctured like the Ruſt of Iron, by which the Morbifick Matter was thrown out, and by degrees the Sutures re-united, and the Patient recovered.

CHAP. LXXII.

Of the Luxation of the Bones of the Noſe.

THIS Operation is *a Reducing the Sutures of the Bones of the Noſe, to their Juncture with the Coronal Bone.*

THE CAUSE of this Accident, is uſually ſome Blow or Fall.

THE SIGNS. When theſe Bones are Luxated, there appears a ſmall Cavity between the Bones of the Forehead and Noſe, and theſe laſt ſhake upon the leaſt touch; the Noſe it ſelf is diſtorted, and the Patient breaths with difficulty.

The OPERATION.

This Diſlocation ſeldom happens, the Bones of the Noſe and the Coronal Bone being very firmly united, and when it does, it muſt be reduced in the following manner. Take a ſmall ſtick of Deal of a proper ſize planed and fitted to the Noſtrils, and wrapt round with Tow; and then placing the Thumb on the Root of the Noſe, partly on the Coronal, and partly on the Naſal Bone to keep the Bones ſteddy, put them into their place with the ſtick. In putting the ſtick up, you muſt take care not to hurt the ſpungy Bones of the Noſe, for fear of Wounding the Part, and cauſing ill-conditioned Ulcers.

THE DRESSING is the ſame as in Fractures of the Noſe.

THE CURE. If there be a Wound, dreſs it once every day as a Complicate Wound.

CHAP.

CHAP. LXXIII.

Of the Luxation of the lower Jaw.

THIS Operation is *Reſtoring the Head of the Bone into its Natural Cavity.*

THE CAUSE. The Luxation of the lower Jaw often proceeds, from opening the Mouth too wide in yawning. This Luxation moſt commonly happens in the Fore-part, and rarely in the hinder, by reaſon of the Mamillary Proceſſes which hinder the Bone from ſlipping behind. The Jaw is ſometimes luxated on one ſide only, and at other times on both.

THE SIGNS. When the Jaw-bone is diſlocated only on one ſide, it is turned tranſverſly, and is plainer and more depreſt, than the ſound ſide on which there is an apparent Tumour. The Patients Mouth ſtands wide open, and he can neither ſhut it nor chew his Meat; and the Teeth of the lower Jaw ſtand out farther than thoſe of the upper, and do not anſwer to the correſpondent ones on the other ſide.

When the Mandible is luxated on both ſides, it hangs on the Breaſt, and the *Saliva* flows inceſſantly from the Mouth, the Parotid Glands being compreſt by the Head of the Bone. There is a Tenſion of the Temporal Muſcles, and the Patient can neither ſhut his Mouth, nor ſtir his Tongue.

When there is a Diſlocation on both ſides, the Bone is much more difficult to reduce, than when it is on one ſide only, and the Accidents are more deſperate; and unleſs it be inſtantly reſtored, there is a great Pain, Feaver, and an Inflammation of the Throat, and the Patient dies in ten days time.

The OPERATION.

If the Bone has been out for any time, Emollient Remedies muſt be uſed before it can be reſtored.

To reduce a compleat Luxation when both Heads of the Bone are out; let the Patient ſit upon the Floor or a low Stool, and place a Servant behind to ſupport and keep his Head ſteddy, and then put both your Thumbs into the Patients

tients Mouth, having wrapt them round with a Tape to defend them from being hurt by the Patients Teeth, and to hinder them from ſlipping when you preſs on the lower Jaw; then clap your other Fingers under the Patients Chin, to draw the Jaw and raiſe it up.

But if the Mouth be ſo cloſe that you cannot thruſt your Thumbs in, put a ſmall Wooden Wedge about an inch thick, and introducing theſe Wedges ſtrongly by their thinner end, keep them on the Teeth; in the laſt place, put a Girth under the Chin, and let a Servant put both his Knees on the Patients Shoulders, and draw the ends of the Girth, while you thruſt down the Wedges to bring the Jaw into its place.

When it is only Diſlocated on one ſide, place the Patient on a low Stool, and let a Servant ſtand behind to keep his Head ſteddy; then put your Thumb on the Grinders of that ſide which is diſlocated, and thruſt the Jaw down, and reduce it into its place.

The Mandible may be reduced ſometimes by a blow of the Fiſt only, on that ſide which is not luxated, but this can only take place when the Luxation is uncompleat.

THE DRESSING is the ſame as in a Fracture of the Jaw.

THE CURE. Let the Patient feed on Nouriſhing Liquids, for he cannot eat any thing that is ſolid, and let him keep himſelf ſtill in his Bed; and if there be the leaſt ſigns of Inflammation, give him Clyſters to keep his Body open.

CHAP. LXXIV.

Of the Luxation of the Clavicle.

THIS Operation is *the Reduction of the Head of the Clavicle to its Articulation, with the* Acromion *of the Shoulder-blade, or the* Sternum.

THE CAUSE of the Luxation, is ſome Blow or Fall.

THE SIGNS. The Clavicle is moſt commonly diſlocated in its Juncture to the *Acromion*, and very ſeldom in that to the *Sternum*, becauſe the firſt Rib ſerves as a ſupport to it.

When

When the Clavicle is diſlocated, the Patient cannot lift his Arm without a great deal of Difficulty, the *Acromion* cauſes a jetting out, and there is a Cavity caus'd by the Clavicles falling down.

This Accident is hard to be remedied in Ancient Bodies, becauſe the Ligaments grow hard and bony, and are very difficultly agglutinated when once they are broken.

The OPERATION.

Let the Patient lie on his Back, and put ſome hard convex Body between his Shoulder-blades, then preſs his Shoulders and the ſide of his Breaſt, and in the mean time reduce the bone into its place.

THE DRESSING is the ſame as in a Fracture of the part.

THE CURE. Let the Patient keep his Bed, and let his Diet be Roaſted Fleſh, or any other Nouriſhing Meat, and bleed him, and give him a Clyſter if occaſion ſhall require.

CHAP. LXXV.

Of the Luxation of the Vertebræ.

THIS Operation is *the Reſtoring one of the* Vertebræ *which is ſlipt out of its place.*

THE CAUSE. The Diſlocation of the *Vertebræ* proceeds from ſome Blow, Fall, Strain, Violent Motion of the Body, or ſome ill Poſture, or the Relaxation of ſome Ligament by a Flux of Humours.

THE SIGNS. Diſlocations of the *Vertebræ* are compleat or imperfect.

In an imperfect Luxation of the *Vertebræ* the Neck remains diſtorted, the Face is Livid, and the Patient has a great Difficulty to ſpeak and breath; but if the Luxation be compleat, the Nerves and Spinal Marrow ſuffer a violent Compreſſion, and the Patient muſt inevitably die, unleſs he be relieved forthwith.

The

The *Vertebræ* of the Back may be diſlocated four ſeveral ways, Outwardly, Inwardly, to the Right, and to the Left. When any of the *Vertebræ* are luxated inwardly, there is a Depreſſion in the place, but if outwardly, onthe contrary there is a Tumour. If the *Vertebræ* be ſlipt outſide-ways, there is an unuſual riſing that way.

When any of the *Vertebræ* are luxated inwardly, the Patient has a Difficulty of making Water and voiding his Excrements, cannot move his Thigh without a great deal of difficulty, and it becomes cold; becauſe the Origin of the Nerves which are diſpenſed to that Part are compreſſed, and theſe ſort of Luxations where the *Vertebra* is ſlipt inwards, are very difficult to reduce, becauſe there can be no compreſſion made on the Belly for that purpoſe.

If the *Vertebræ* of the Back bunch out in Children, the Ribs do not grow at all, or at leaſt but very little, and jet forwards, and make an acute Angle at the *Sternum*, by which means the Cavity of the Breaſt is not capacious enough for the Expanſion of the Lungs, but they being compreſt, the Patient becomes Aſthmatick.

If the Spine be convex, there is a ſtop put to its growth, but the Arms and Legs encreaſe exceedingly.

When the Rump-bone is diſlocated, the Patient cannot bring his Heel towards his Buttock, nor bend his Knee without a great deal of Difficulty, nor can he ſit or go to Stool without a great deal of trouble.

The OPERATION.

To reduce the *Vertebræ* of the Neck, of whatever kind the Luxation be, place the Patient on a low Chair, and let a Servant lay a great ſtreſs on his Shoulders, and while he does this, take hold of the Patients Head under the Ears, and making an Extenſion of it, turn it to and fro till it be reduced; and you may know that it is ſo, by his being able to turn it himſelf, and the ceſſation of the Pain.

To reduce the *Vertebræ* which are luxated externally, let the Patient be laid on a Table on his Belly, and faſten a Girth under his Arm-pits, and on the Hips, and tie at the ſame time his Thighs and Legs, and draw both above and below, without making ſo violent an Extenſion, and in the mean time reduce the Part.

If the *Vertebra* cannot be reduced in this manner, take two ſticks near a Fingers breadth in thickneſs, and about four or five times as long, and wrap theſe in a Cloth for fear

of

of hurting the Patient; then lay one of theſe ſticks on each ſide the diſlocated part, and make a great preſſure on them, to thruſt in the *Vertebræ*, or take a great Roller of Wood, ſuch as Paſtry-cooks uſe, and roll it to and fro on the two ſticks; Note here that the two ſticks which are on the ſide, be higher than the Spinal Proceſs of the *Vertebræ*, to prevent all danger of breaking it.

You may conclude the *Vertebra* is reduced, if it be equal with the contiguous ones.

Though the Luxation of the *Vertebræ* inwardly be almoſt impoſſible to reduce, and moſt commonly is Mortal, you muſt not nevertheleſs abandon the Patient; and therefore when this happens, place the Patient on his Back, and make an Extenſion with Pullies, in the manner above deſcribed, and then manage the Spine, and try to bring in the *Vertebra*. If this fail, make an Inciſion on the *Vertebra*, which is depreſt juſt over its Spinal Proceſs, and take hold of it, and endeavour to reduce it in this manner.

If the Rump-bone be thruſt in by any Blow or Fall, put the Fore-finger of the right Hand into the *Anus* and puſhing it up with the left Hand preſs it out, and guide it into its place.

If the Luxation be external, which ſometimes happens in violent Labours, put the Bone gently in with the Fingers. Theſe Bones are confirm'd in three Weeks.

THE DRESSING. When the *Vertebræ* of the Neck are reduced, let the Patient incline his Head to that ſide which is oppoſite to the Diſlocation, and put a Fillet about the Neck, which muſt be faſtned on the Arm.

If you have made an Inciſion on the *Vertebra*, and there enſue a Flux of Blood, ſtop it with Aſtringents.

If the *Vertebra* be luxated outwardly, lay a ſmall Plate of Lead on each ſide to keep it in its place, and lay a thick Compreſs over it, and keep this on with the Napkin and Scapulary, as is directed in the Chapter of the *Empyema*.

If the Luxation be inwards, the *Vertebra* muſt not be compreſt by Bandages, nor any Plates or Splints laid on it for fear of occaſioning a new Diſlocation.

In a Luxation of the Rump-bone, whether inwards or outwards, the Dreſſing muſt be the ſame as in a Fracture of the Rump-bone.

THE CURE. If any Inciſion be made to bring out the *Vertebra* which is luxated inwards, the Wound muſt be dreſt after the uſual manner, and the Patient muſt lie on one ſide, and obſerve a good Diet.

R E-

REMARKS.

Fabr. Hildanus, Cent. 5. Obſ. 68. relates, that a certain Man having a Luxation of two *Vertebræ*, was Paralytick from the Navil to the Feet.

A Country Man hapning to fall from a Tree, had the ſecond *Vertebra* of the Loins luxated inwards; upon which he felt a great pain, which continued for a long time, and he Vomited his Meat before Digeſtion, and continued in this condition ſeveral Days, without being able to retain any thing in his Stomach. After ſome ſhort ſpace he was ſeized with a burning Feaver, an unextinguiſhable Thirſt, want of Sleep, Reſtleſsneſs, with a dryneſs of Tongue, and a *Delirium*; all the Parts below the Navil became Paralytick, and he could neither retain his Urine nor his Excrements.

Bartholin. Cent. 6. Hiſt. 48. relates, that a certain *Iriſh* Woman turned her Head round ſo far, that her Noſe ſtood in a Right line with her Shoulder, her Head could be replaced in its Natural Situation with a great deal of eaſe, but ſo ſoon as this was done, it would immediately return to its former poſition; this Deformity he aſſures us, was cauſed by Mercurial Applications to the Neck.

CHAP. LXXVI.

Of the Luxation of the Ribs, and the Cartilago Mucronata.

THIS Operation is *the Reducing the Ribs to their Function with the* Vertebræ, *and the* Cartilago Mucronata *with the* Sternum.

THE CAUSE of their Luxation, moſt commonly is ſome Blow or Fall.

THE SIGNS. The Luxated Ribs are either depreſt inwards, or elevated outwards. When a Rib is depreſt inwards, there is an apparent Cavity near its Articulation with the *Vertebræ* of the Back, but if the Head of the Rib ſlip outwards, there is a hard Tumour on the Part, and in both one

one and the other kind of Luxation, Reſpiration is painful and laborious, and the Patient cannot move his Body without Pain, becauſe the Rib preſſes on the Muſcles.

The Mucronated Cartilage is inverted, and its point turned inwards, eſpecially in Women and Children; and when this happens, it uſually occaſions them to die emaciated, becauſe the Liver and upper Orifice of the Stomach are hurt, and the Veſſels being ſtrongly compreſt, by this means the Circulation of the Blood is interrupted. When this Cartilage is luxated, there is a great hollow in the lower part of the Breaſt, and the Patient cannot breath without a great deal of Pain and Difficulty.

The OPERATION.

When a Rib is luxated outwards, lay the Parients Arm over a Door to ſuſpend the Body, and then thruſt the riſing of the Rib into its place.

If the Rib be luxated inwards, you muſt make an Inciſion to bring it outwards.

When the Mucronated Cartilage is depreſſed, lay the Patient on his Back on ſome convex Body; and then preſs both ſides of the Breaſt with the Hands to raiſe the Cartilage. If this fail, apply dry Cupping-glaſſes on it to raiſe it. Before you attempt to reduce it, chafe the Part very well with Oyls of *Caſtor*, *Turpentine*, and ſuch like Spirituous Topicks.

THE DRESSING in Luxations, is the ſame as in Fractures of the Ribs.

When the Mucronated Cartilage is reduced, lay ſome proper Emplaſter on to ſtrengthen it, *Ambroſe Parry* uſes this Compoſition. ℞. *Root of Biſtort*, ℥i. *Cypreſs Nuts*, ℥i. *Maſtich*, *Frankincenſe*, ā. ℥iß. Balauſtiums, ℈i. *Oyl of Walnuts*, ℥iß. *Pitch* and *Turpentine*, as much as will reduce theſe Ingredients to the conſiſtence of an Emplaſter.

REMARKS.

Bartholin, *Cent.* 2. *Hiſt.* 12. relates, that a certain young Man having a Looſneſs, had the lower Ribs on the right ſide luxated in ſuch a manner, as to be ſeen and felt. All the means that his Surgeons could think on proved ineffectual, his Strength decayed, he had a lingring Feaver; after ſome time there aroſe a ſmall puſtule which ſuppurated and

broke, upon which the luxated Ribs returned to their place, and the Ulcer was cured, and the young Man did well.

The ſame Author, *Cent.* 4. *Hiſt.* 58. relates, that a certain Man being very much tired with walking in ſtony ways, felt a great Pain on the right ſide near the Spine, and a Tumour aroſe on the *Sternum*, which incommoded him ſo much, that he could not lie on the right ſide, or ſit by any means, but when he ſtood erect; he did not feel any ſuch pain. After ſome time the Tumour abating, it was found that the Symptoms proceeded from a Luxation of the eighth Rib, which likewiſe was fractured without any diviſion of the Skin.

CHAP. LXXVIII.

Of the Luxation of the Humerus *or Shoulder-bone.*

THIS Operation, is *the Reducing of the Head of the Bones into the Cavity of the Head of the* Scapula.

THE CAUSE. This Luxation proceeds from ſome Blow, Fall, or Relaxation of the Ligaments.

The ſlipping of this Bone out of its Cavity is not difficult, its Head being extremely ſmooth and ſlippery, as well as the Cavity which receives it, which is exceeding Membranous, very ſhallow, and lubricated with an oleous Liquour, which make it eaſily ſlip aſide upon the application of any force outwardly.

THE SIGNS. When the Luxation is downwards, and the Head of the Shoulder-blade is ſlipt into the Arm-pit, there is a Cavity on the Shoulder, the *Acromion* is ſharp and jers out; the Elbow ſtands out, and cannot be brought to the Body without force; it is drawn forwards more difficultly than backwards, and is longer than it ought to be; the Patient cannot lay his Hand on the oppoſite Shoulder, or bring it to his Mouth, and he feels a great deal of pain when he ſtirs it in any manner whatever, by reaſon of the Compreſſion and Tenſion of the Muſcles; but obſerve here, that the Diſability to lift or extend the Arm, is not a ſufficient

cient of a Luxation, because the same thing must necessarily happen on Contusions, Fractures, Inflammations, Wounds, Apostems, Schirrosities, and Fluxions.

The OPERATION.

The Luxation of the Shoulder may be reduced in six several manners, *viz.* by the Fist, by the Shoulder placed under the Patients Arm-pit, by a ball of thread thrust by the Heel by a Ball on a Leaver, by the Ladder; and lastly, by the *Amby*.

To reduce a Shoulder by the help of the Fist clenched, lay the Patient on a Table on that side which is opposite to the Light, and let one Servant put a Girth under his Arm-pit, and another a second above the Elbow; let him who holds the Girth which passes under the Arm-pit keep it firm, and let him who has hold of that above the Elbow, draw it till the Head of the Bone be directly against the Socket, and then put it into its Cavity with your Hands or Fist; if the Hands are not sufficient, you may make use of Pullies.

Or if you please, you may place the Patient on a low Seat (or if he be a big Man, he may sit on the ground) and plant a Servant on one side to hold the Patients Body with his Arms, or a Towel, and then take hold of the upper part of the *Humerus* with both Hands, and let another Servant kneel behind you, and take hold of the Luxated Arm above the Elbow which passes between your Legs, and while both these make the Extension, do you knap the bone into its Cavity.

To reduce a Shoulder with the Heel, lay the Patient on the Ground on a Coverlet or Quilt, and then put a Ball of thread under his Armpit, and do you sit opposite to the Patient directly against the luxated Arm, and if it be the Foot, place the Heel of the right, and if it be the left, the Heel of the left Foot on the Ball; then take the Patients Arm with both Hands, and draw it towards the Feet, and thrust the Ball strongly against the Arm-pit. In the mean time let a Servant stand behind the Patients Head, and draw the Head of the *Humerus* with a Napkin, or any other Girth, and put the Soal of his Foot on the Patients Shoulder, and thrust it down; and let another Servant be plac'd behind to keep his Body steddy.

To reduce a Shoulder by the help of the Shoulder of another Perſon, place the Patients Arm-pit on the Acute end of the Shoulder of a luſty Man, who is taller than the Patient, that ſo he may keep him ſuſpended; the Man who holds him keeping his Hand to his Breaſt; and while this is doing, put the Head of the *Humerus* into its Cavity. If the Patient be very light, and the Weight of his Body be not ſufficient to reduce the Shoulder, let ſome Perſon or other hang on his Shoulder. If the Patient be ſo tall that it is difficult to find a Man of a higher Stature, let the Man ſtand on ſome ſmall Stool.

To reduce the Arm with the Leaver, take one four or five Foot long with a bunch like a Tennis Ball in the midſt, and on each ſide the Ball put in two pegs at ſuch a diſtance, that the Shoulder may lodge between them; then placing the Patients Arm-pit on the Ball; let two Men lift up the ends of the ſtaff and raiſe the Patient from the Ground, and in the mean time do you draw down the Arm, and reduce the Head of the Bone into its Natural place.

To reduce a Luxation of the Shoulder with the Ladder, faſten a Ball of thread on the ſtep of a Ladder, which muſt be of a convenient ſize to put under the Arm-pit; then let the Patient get upon a Stool, and tie both his Legs together, and the Arm which is ſound behind his Back, that it may not reſt on his Shoulder when in the Reduction, then place the Arm-pit on the Ball, and bring the Ladder as near him as may be, for fear leaſt the Arm be broke in the Reduction; in the next place, put a ſtrong Girth above the Elbow, and let a ſtout Fellow hold this ſtrongly, and then take away the Stool, and this will bring the Head of the Luxated Bone into its place, or if it do's not, you muſt twiſt it on one ſide and another, till it knaps into its place. When it is reduced, you muſt put the Stool again under the Patients Feet, and take the Arm carefully out of the Ladder, having great care not to lift it up for fear of a new Diſlocation.

In ſtead of a Ladder, you may if you pleaſe make uſe of a Door, obſerving the ſame Circumſtances.

The *Amby* of *Hippocrates* known to our Surgeons by the Name of the Commander, is made of two pieces of Wood faſtned with pins; theſe pieces of Wood muſt be near two Inches and a half diſtant from each other, and to the top of theſe another piece muſt be faſtned, which is longer than a Mans Arm, and which advances half a Foot at one end. This laſt moveable piece of Wood muſt be faſtned between the

the other two with a Pin on which it turns, and may be raiſed or let down at the end.

To reduce the diſlocated Arm with this Inſtrument, place the Patient on a low Stool, ſomething lower than the *Machine*, with his Feet tied together for fear he riſe when the part ought to be reduced, the Patients Arm muſt be laid all along this moveable branch, the leſſer end of it being applied under the Patients Arm-pit, and tied in two or three places, and when this is done depreſs the lower end, and this will bring the Head of the Bone into its place.

THE DRESSING. When the *Humerus* is reduced, put a ſmall ball of Lint under the Arm-pit to fill the Cavity, and keep this ball on with a Compreſs cleft at both ends, which you muſt bring up and croſs on the Shoulder; beſides this, you muſt lay a Compreſs on the other Arm-pit for fear leaſt the Compreſs hurt it, and make the Bandage called *Spica* with a Roller five Ells in length, and three inches broad rolled up at one end.

In applying this bring the end of the Roller under the Arm-pit oppoſite to the Luxation, then bring the other end of the Roller over the part affected, and back again under the ſame Arm-pit; and laſtly over, ſo as to croſs over the firſt turn on the Shoulder, then bring the Roller over the Breaſt, and next under the Arm-pit, oppoſite to that which is affected; then paſs behind the Back and under that Arm which was luxated, and make a ſmall Edging there, then bring it under the Arm-pit and over the Shoulder and continue theſe turns of the Roller in this manner, making Edgings every time you paſs over the Shoulder concerned. Theſe Edgings ſomething reſemble an Ear of Wheat, and this it is which gives the Bandage this Name. When the Shoulder is covered, which is done by gradually deſcending to the Arm, make two Circular turns round the upper part of the *Humerus*, and theſe will make a Triangle which is called *Geranium*, or the Cranes Bill; this Triangle muſt be covered by riſing with Edgings, and when this is done, bring the Roller round the Breaſt and faſten it, and put the Arm in a Sling. The manner of which we have deſcribed in the Chapter of the Fracture of the Arm.

THE CURE. Let the Patient keep his Arm in a Sling, the Cubit making a right Angle with the Arm, and reſting on the Ribs.

The Dreſſings muſt not be taken off the firſt four or five Days, unleſs ſome Accident happen, the Patient muſt feel

on Nouriſhing Diet, and repoſe himſelf as much as poſſible.

REMARKS.

Fabr. Hildanus tells us, that a Child of eight years of Age, of a good Habit of Body, had his right Arm diſlocated by a Fall, which mightily emaciated and waſted him, and this was the more remarkable, that leſſening while the other parts grew larger. At length his Relations perceived a coalition in the bending of his Arm, which hindred him from extending it, and it continued bent like a crooked ſtick, without putting him to any pain.

CHAP. LXXIX.

Of the Luxation of the Elbow.

THIS Operation is *a Reſtoring the Cubit to its Articulation, with the* Humerus.

THE CAUSE. This Diſlocation proceeds from ſome Fall or Relaxation of the Ligaments.

THE SIGNS. The Cubit is luxated in four ſeveral manners, either inwards or outwards, or on one ſide.

When the Cubit is luxated inwards, the *Olecranon* is ſtopt in the internal Cavity of the Condyl of the Shoulder-bone, the Arm is bent, and the Hand is turned inwards; but if the Luxation be outwards, the Arm is ſtrait and ſhorter than the other; the internal Proceſs of the Cubit lies in the external Cavity of the Condyl of the *Humerus*, and the *Olecranon* paſſes beyond the Cavity, which naturally it ought to lodge in. If the Luxation be on one ſide, there is a riſing in the place of the Head of the Bone, and a Depreſſion where it is ſlipt out. Theſe Luxations for the moſt part are incompleat.

The OPERATION.

If the Luxation be inwards, let ſeveral Servants make an Extenſion of the *Humerus* and Arm, and in the mean time bend the Arm, and bring the Hand to the Shoulder.

There

There are divers Practitioners who lay a Ball on the Flexure of the Joynt, and then bend the Arm preſently, bringing it to the Shoulder.

If the Cubit be luxated outwards, let the Arm be drawn above and below, and during theſe Extenſions, put the *Olecranon* into its Cavity. In reducing this Luxation, you muſt not bend the Arm as in the former caſe, becauſe a Motion of this kind would hinder its Reduction.

If you like it better you may proceed thus; take the Patients Arm and put it round a Pillar, and faſten a Girth near the Proceſs of the *Cubitus*, and then draw this with a Leaver round the Pillar, till the Bone knap into its place. Or take a ſtick of a Foot long and an inch Diameter, and wrap the middle of this round with a Cloth, then take hold of both ends with each Hand, and puſh ſtrongly in the Head of the Bone with the middle of the ſtick, while the Servants make the Extenſion. This laſt Method of Reducing the Bone is very ſerviceable, when the Luxation is inwards or outwards, but if the Cubit be ſlipt on one ſide, let two Servants take hold one of the Arm, and the other of the Shoulder; and then reduce the Bone into its place. Note here, that a Luxation of the Cubit can hardly be without the *Radius*, ſtarting from the Shoulder-bone, and therefore in reducing the Cubit, the Surgeon muſt examine whether the *Radius* remain in its place, which he may diſcover by the Pronation and Supination of the Hand; for if he be unable to do this, it is a certain Sign that the *Radius* is ſeparated.

THE DRESSING. Lay a ſimple Compreſs dipt in ſome Defenſative Liquour, to take off the Inflammation. This Compreſs muſt be ſlit lengthways, for the better applying it on the Juncture, and when it is on, make a Bandage with a Roller five Ells long, and an Inch and a half broad. In doing this, firſt make a Circular turn on the lower part of the *Humerus*, then deſcend obliquely in the bending of the Arm, and make a Circular turn on the upper part of the Arm, and an X on the Flexure of the Elbow, and thus continue to aſcend and deſcend, making Edgings on the Elbow, and Xs on the bending of the Joynt, till the Elbow be quite covered; and when this is done, aſcend up the Arm and faſten the Roller about the Breaſt.

THE CURE. Put the Arm in a Sling, in the ſame manner as was deſcribed in the Fracture of this part. Let the Patient uſe a good Nouriſhing Diet, and often make a Pro-

nation and Supination of his Arm, for fear leaſt the Bones be cemented together.

CHAP. LXXX.

Of the Luxation of the Bones of the Wriſt.

THIS Operation is *a Reduction of the Bones of the Wriſt, to the Cavity of the* Radius.

THE CAUSE. This Luxation moſt commonly proceeds from ſome Fall or Relaxation of the Ligaments.

THE SIGNS. The Diſlocation of the Wriſt is either inwards, outwards, or one ſide. When the Diſlocation is inwards, and the Hand is turned back when it is outwards, it is bent, when it is on the right ſide the ſide of the little Finger; and when on the left, it is turned on the ſide of the Thumb.

The Articulation of the Hand being very lax, it may eaſily be luxated.

The OPERATION.

If the Luxation be inwards, lay the back of the Patients Hand on a Table, and while the Extenſion is making, preſs the prominent bone into its place with the Palm of your Hand. If the Luxation be outwardly, lay the flat of the Patients Hand, and proceed as before. If the Luxation be on one ſide when the Extenſion is made, twiſt the Bones on the ſide oppoſite to the Diſlocation, and draw each Finger ſeparately, that ſo the Tendons may come into their place.

If the Bones of the Wriſt are ſlipt into the Hand, lay the back of the Hand on a Table, and preſs the Bones into their place.

If they are ſlipt on one ſide, preſs them to the oppoſite.

The *Metacarpus* is compoſed of four Bones. The two middle of theſe cannot be diſlocated on one ſide, becauſe they are ſupported by the two Bones which are on each ſide. That which ſuſtains the Fore-finger, and that which ſuſtains the little, cannot be diſlocated towards the Fore-finger, nor that

that which ſuſtains the little Finger, towards the middle Finger. All the other Bones may be luxated inwards or outwards; but ſince the manner of Reducing them is the ſame as with that of the *Carpus*, I ſhall remit the Reader thither.

The Fingers may be diſlocated inwards, outwards, or one ſide. To reduce them, there is nothing farther neceſſary than to pull them, and put the Head of the Bone into its place.

In theſe Diſlocations the Parts recover their Natural tone in twelve Days time.

THE DRESSING. This is the ſame with that taught in Chap. LXVI.

THE CURE. Take care that the Bandage be not too ſtrait nor too ſlack, and keep the Dreſſings on as long as may be, and let the Patient uſe a ſtrengthning Diet.

REMARKS.

In the ſecond Month one may perceive by the help of a Microſcope, ſeveral white ſpots at the extremity of the Wriſt in a *Fœtus*, and there the Oſſification of the Bone commences. In the fourth, fifth, and ſixth Month, they only encreaſe in their Dimenſions, without any other ſenſible Alteration. In the ſeventh and eighth Months. the *Epiphyſes* of the Fingers can hardly be diſcerned; but in the ninth Month, they are as diſtinct and viſible, as in the Bones of Adult Perſons.

CHAP. LXXXI.

Of the Luxation of the Thigh.

THIS Operation is *the Reduction of the Head of the Thigh-bone, into the Cavity of the* Iſchion.

THE CAUSE. A perfect Luxation of the Thigh cannot happen, except the Part ſuffer great Violence, for the Head of the Thigh-bone is retained in the Cavity of the *Acetabulum* by a ſtrong Ligament. The Circumference of this Cavity is edged with Cartilaginous Ligaments, which likewiſe cover the Neck of the Head of the Thigh-bone,

and

and ſeveral of the largeſt and ſtrongeſt Muſcles of the whole Body are inſerted into this Bone, and conſpire to ſtrengthen this Articulation. Sometimes indeed a Luxation happens from too great a Relaxation of the Ligaments, but this is ever an imperfect one.

THE SIGNS. When the Head of the Bone is ſtopt on the ſhare-bones, there is a Tumour in the place where the Head of the Bone is, one Leg is longer than the other, and the Knee and Foot are turned outwards; the Knee cannot be bent, and the Thigh brought toward the Groin, becauſe the Head of the Bone keeps the Muſcles extended.

If the Head of the Bone be ſlipt outwards, the Leg is ſhorter, becauſe the Head of the Bone paſſes over its Cavity; the Knee and Foot is turned inwards, and the Heel outwards, and the Patient cannot ſupport himſelf, except on the end of his Foot. It ſometimes happens that the Head of the Thigh-bone remaining for a conſiderable time in the ſame place, forms a ſort of a Cavity amongſt the Muſcles, which are hardned by a conſtant compreſſion of the Bone, and by this means ſometimes the Patient is able to walk without a ſtick.

When the Thigh-bone is ſlipt forwards, the Head of the Bone is lodged on the *Os Pubis*, and makes a Tumour in the Groin, and the Muſcles of the Buttocks have Furrows in them, which is cauſed by their very great Tenſion. The Patient cannot bring his Thigh to the Groin, nor bend his Knee, both Legs in a manner equal, and the Luxated Leg can reſt on the Heel only; and there is frequently a ſuppreſſion of Urine, which proceeds from the Compreſſion of the Nerves.

When the Luxation is backwards, there is a large Tumour on the Buttock, which is made by the Head of the Bone, and the Pain is very great which is occaſioned by the violent Tenſion of the Muſcles, the Leg is ſhorter than the other, and there is a depreſſion in the Groin, the Patient cannot bend his Leg but it hangs back.

If the Luxation proceed from an internal Cauſe, there is ſmall hopes of the Patients Recovery.

The OPERATION.

To reduce a Luxation inwards, lay the Patient with his Back on a Table, and put into the Table a Pin a Foot or

two

two long, and put this between the Patients Legs near the Groin; then faſten one Girth under the Juncture of the Thigh, and another above the Patients Knee, and with theſe let the Extenſion be made. In the mean time put the Head of the Bone into the *Acetabulum*; when the Head of the Bone is drawn enough, let the Aſſiſtants who make the Extenſion ſlacken a little, for the more eaſie reducing the Head of the Bone; and this is to be obſerved in all Reductions whatever.

If the Thigh be luxated outwards, let the Patient lie on his Belly, and make an Extenſion with Girths after the manner deſcribed, and thruſt the Thigh inwards to bring the Head of the Bone into the Cavity.

If the Luxation be forwards, lay the Patient on the oppoſite ſide, and make the Extenſions as before; and when this is done, put the Head of the Bone into its cavity with a Tennis Ball, and puſh this with the Hand or with the Knee, for the greater force, and bring the luxated Leg to the other.

If the Luxation be backwards, place the Patient on his Belly, as in a Luxation outwards, and let the Extenſion be made in the ſame manner; then take the Patients Knee and draw it outwards, to bring the Head of the Bone into the *Acetabulum*.

When the Ligaments of the Thigh are relaxed, the Extenſion muſt not be ſtrong; for it is plain, this is both uſeleſs and hurtful, and a prudent Surgeon muſt always conſider the Nature of the Luxation, before the Extenſion be made.

THE DRESSING. The Bandage muſt be the *Spica*, and is the ſame which is deſcribed in the Operation of the *Bubonocele*.

THE CURE. Let the Patient refrain from all Cold, Moiſt, and Phlegmatick Meats, and uſe a ſtrengthning Diet, and drink Ptiſans aromatized with *Roſemary*, *Sage*, *Marjoram*, chafe the Neighbouring parts with Oyls of *Dill*, *Chamomil*, and *White Lilies*; and becauſe the Patient leads a Sedentary Life, and there is apt to be a congeſtion of Humours in the part, purge his Body at convenient times with Lenitives, and if you ſhould now and then give him a Vomit, it would not be a miſs.

As for local Applications, take a bag of leaves and flowers of *Betony*, *Sage*, *Roſemary*, *Primula veris*, *Lavender*, Origanum, *Wormwood*, ā. one Handful, *Roſes*, *Juniper Berries*,

ries, *Oak-moss* ℥. two Handfulls, *Aniseeds* two ounces, boil these with a handful of *Salt*, and apply it round the Luxated part, do this once every three or four Days, and rub it together with the Contiguous Parts with Juice of *Earth-worms*.

If the Reader pleases, he may turn to the Hundreth Observation, in the fourth Century of *Hildanus*, where that Author expatiates very much on this important Subject.

REMARKS.

Kerkringius, *Obs.* 61. tells us, that in opening one of his Neeces who had in her Life-time been afflicted with a lameness, which had eluded all attempts to cure her (for want of a right understanding of the Cause) he found the Cavity of the Hip very large and deep, and the Head of the Thigh exceeding small, by which means it easily slipt up and down, the Ligaments being relaxed, and elongated by the Weight of the Thigh, upon drawing the Leg it would be equal to the other, because the Head of the Thigh-bone was replaced in its Cavity, but then again it would immediately fall out.

CHAP. LXXXII.

Of the Luxation of the Knee.

THIS Operation is *a Restoring the* Tibia *to its Articulation with the Thigh-bone.*

THE CAUSE of this Dislocation is some Fall, Strain, Wrench, or Relaxation of the Ligament.

THE SIGNS. The *Tibia* may be luxated four ways, *viz.* downwards, forwards, or on either side.

It seldom happens that the Leg is luxated forwards, because the Tendons of the Muscles of the Leg keep the *Tibia* streight; and when such a Dislocation happens, those Tendons must be lacerated or exceedingly relaxed. When the *Tibia* is luxated backward, the Condyls are in the Cavity of the Ham, and the Leg is bent. When the *Tibia* is luxated on one side, there is a rising on that side, and a Depression on the opposite; if the Condyl be slipt inwards, there

there is a Riſing within, and a Depreſſion outwards, and the Leg is turned outwards, and directly the contrary happens, when it is luxated inwards.

The *Tibia* is eaſily luxated, becauſe its Articulation is not very ſtrict, the Condyls of the *Tibia* jet out, and the *Sinus* are ſhallow.

The OPERATION.

To reduce the Luxation when the Head of the Bone is ſlipt backward, place the Patient on a low Stool, or a Bench of a midling height, with his back turned towards you, then put his Leg between yours, and bend it with both Hands towards the Patients Buttocks.

Or let the Patient lie on his Belly, and take a Coul-ſtaff with a Bunch or Ball in the midſt, let an Aſſiſtant put this on the bending of the Ham, and on the end of the Bone which jets out, and let another put a Girth ſomething more than two Inches broad, and in the mean time bend it forcibly againſt the Buttock.

If the Diſlocation be forwards, let the Patient lie on his Back, and put one Girth above the Knee, and another above the Juncture of the Foot, and put the Knee into its place with your Hands, or a Coul-ſtaff with a bunch in the midſt. If your Hands are not ſtrong enough, you may make uſe of Pullies; when the Leg is well reduced, the Patient can bend or extend, or make uſe of it in any manner without Pain.

If the *Tibia* be luxated on one ſide when the Extenſion is made, bring the Head of the Bone into its place, with your Hands or a Coul-ſtaff with a bunch in the midſt, the Patient lying on a Table during the Operation.

If the leſſer Focil be luxated in its upper part, you may thruſt it into its place with your Hand.

THE DRESSING in theſe Diſlocations, is the ſame as in a Fracture of the *Rotula*.

THE CURE. Let the Patient keep his Bed with his Leg extended, and laid in Junks. After ſome time, let him ſtir it a little to prevent the Coalition of the Bones, and during the Cure, let them uſe a good Nourihing Diet.

CHAP.

CHAP. LXXXIII.

Of the Luxation of the Bones of the Foot.

THIS Operation is *a Reducing the luxated Bones into their Natural place.*

THE CAUSE of this Diſlocation, moſt commonly is ſome Wrench.

THE SIGNS. If the Juncture of the *Aſtragalus* with the *Tibia* be ſeparated, is a Riſing occaſioned by the Bone. If the *Aſtragalus* be ſlipt inwards, the Soal of the Foot is turned out; and if it be diſlocated outwards, the Soal is turned in. If it be ſlipt, in the great Tendon implanted into the Heel, is almoſt quite hid in the Foot.

The Bones of the *Tarſus* and Foot are diſlocated diverſe ways, all which appear by the prominences and depreſſions.

The OPERATION.

If the *Tibia* and the leſſer Focil are ſeparated, put them into their place with your Hand, in the beſt manner that you can.

You may reduce the *Aſtragalus* by drawing, and forcibly thruſting the Foot to that part oppoſite to that from whence it ſlipt.

If the Bones of the *Tarſus* are ſlipt upwards, let the Patient ſet his Foot on a Table or the Floor, and then thruſt the Bones into their place, if the prominence be below or on one ſide; you muſt in the ſame manner thruſt the Bone into its place.

If the Bones of the Toes are diſlocated, they muſt be reduced in the ſame manner as all the other Bones after a due Extenſion made. Upon the whole Matter in theſe and the like Matters, good Senſe with ſome Experience goes farther, than all the Inſtructions which can be delivered in Books.

THE DRESSING and CURE are the ſame as in ſimple Fractures of the Foot.

REMARKS.

The *Tarſus*, *Metatarſus* and Toes are Cartilaginous in a *Fœtus*

Fœtus in the Womb on the third Month, and about that time the *Metatarſus* is oſſified.

In the fourth Month the Bones of the *Metatarſus* are entirely formed, and the oſſification of the Bones of the *Tarſus* begins to appear by ſeveral ſmall bloody Spots. In the ſame Month the upper and lower Junctures of the Toes of the Foot are diſtinguiſhed by ſeveral white ſpots, and thoſe in the middle are Cartilaginous.

In the fifth and ſixth Month, the ſecond Rank which is next the Thumb is oſſified. In the ſeventh and eighth Month the two Fingers next the Thumb are oſſified in the middle. In the ninth Month the reſt of the Fingers are oſſified likewiſe.

From the fourth to the ninth Month, the Bones of the Foot gradually encreaſe. In the eighth Month the *Calcaneum* grows bony, and in the ſame Month the *Aſtragalus* is bony likewiſe, and there appears a Diviſion in the *Tarſus*; but in the ninth Month the Junctures are very apparent.

Fab. Hildanus, Cent. 2. *Obſ.* 67. relates, that a Rubuſt Fellow leaping over a Ditch, wrencht his Leg in that violent manner, that he burſt the Ligaments together with the Skin, and the *Aſtragalus* was diſlocated, which the Surgeon perceiving to hang by ſome Fibres only, took off.

FINIS.

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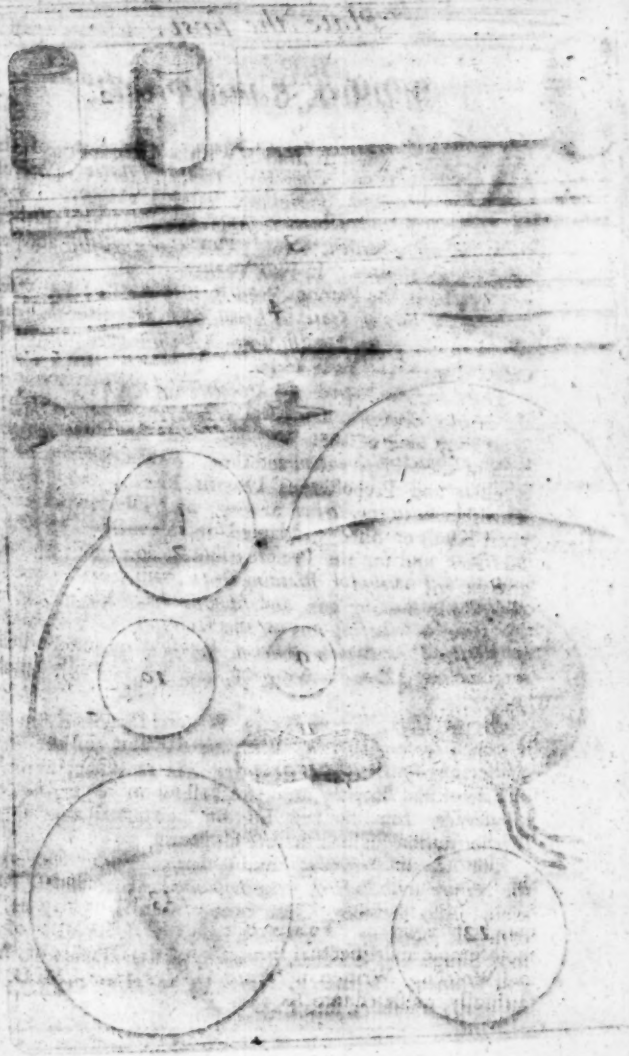

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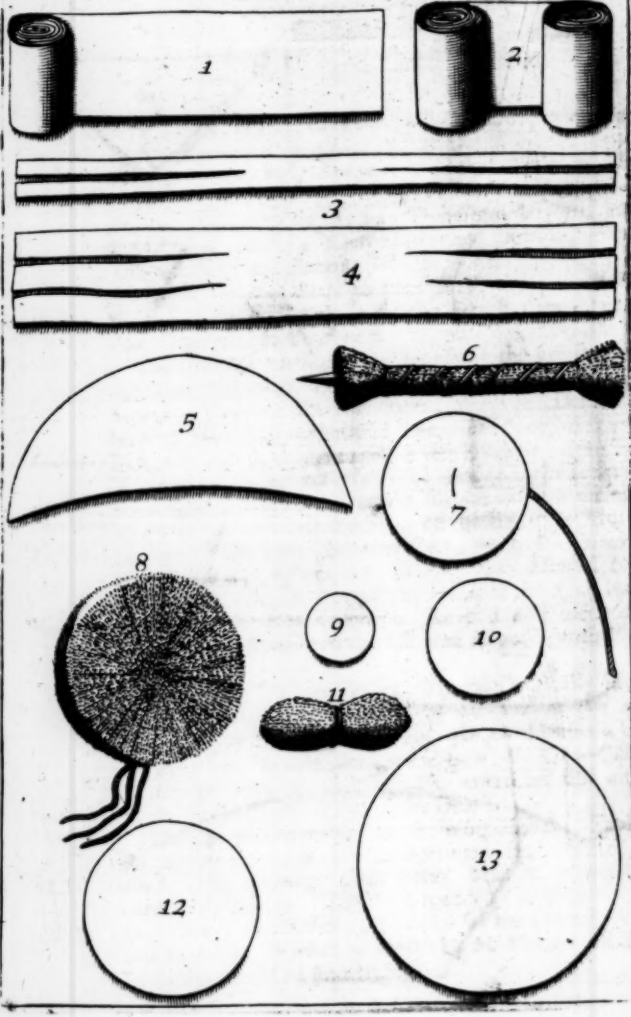

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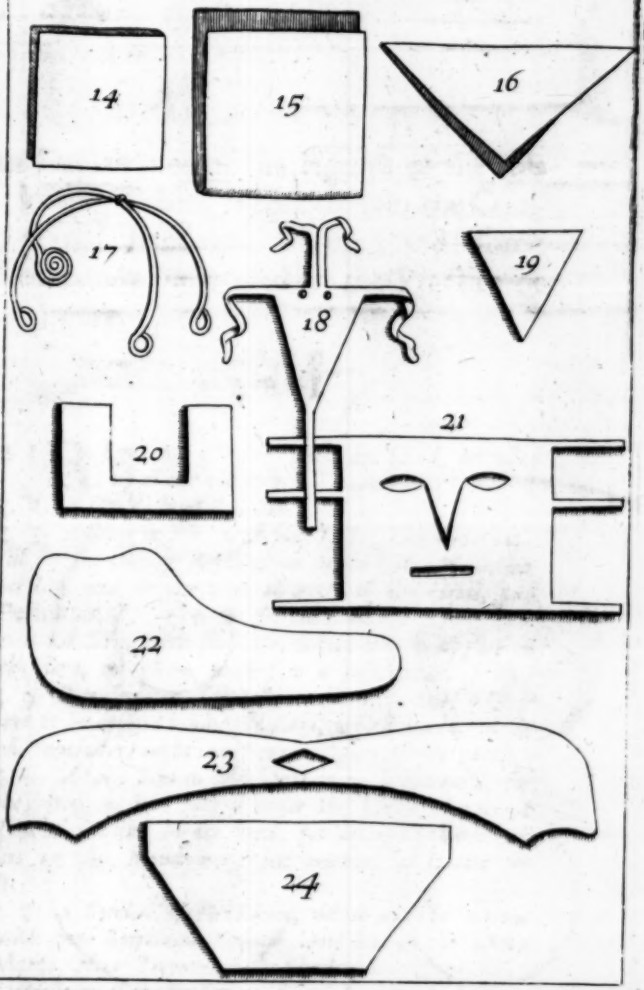
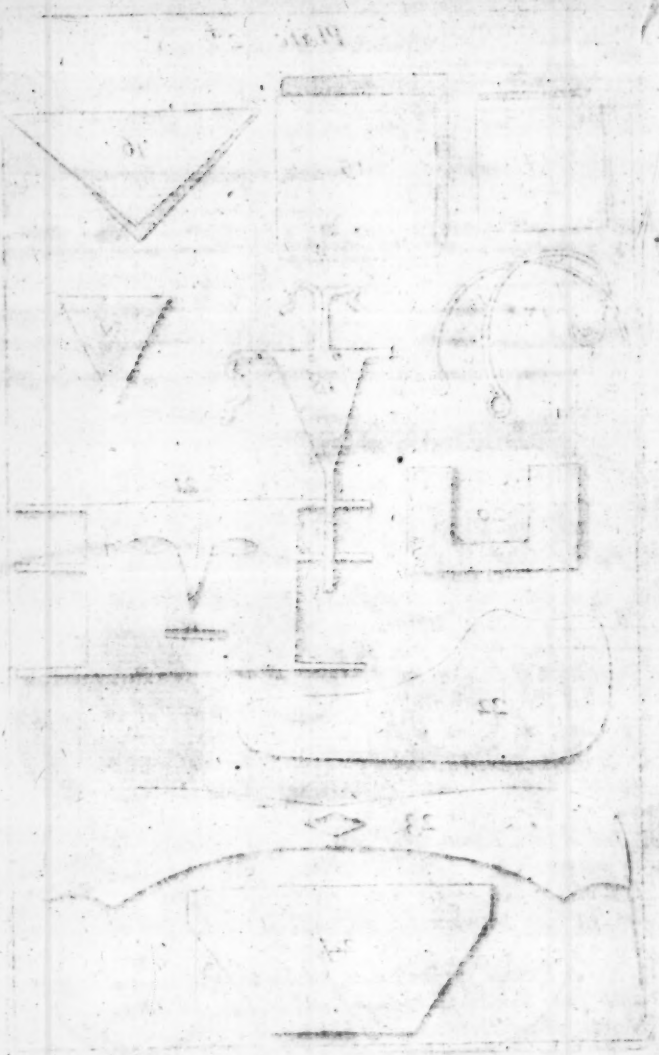




An Explanation of the Figures of the following Tables, which contain the Compound Bandages, Sutures, and ſome other Machines uſed in the Practice of Surgery.

TAB. I.

Fig. 1. *Repreſents a Roller with one Head, or rolled up at one end only.*

Fig. 2. *A Double headed Roller.*

Fig. 3. *A Sling or Fillet with four Tails; This is very uſeful for the keeping Applications on the Eyes, Noſe, upper Lip, and in ſhort, on all parts of the Head, and* Perinæum *of Perſons cut for the Stone.*

Fig. 4. *A Sling with ſix Tails, which may be applied on the Ears, though one with four is ſufficient.*

Fig. 5. *Repreſents an Emplaſter made in form of a Creſcent to be applied behind the Ears, which is adapted as all Emplaſters ought to be, to the Figure of the part.*

Fig. 6. *A falſe Tent in which a Lancet is conceal'd, for the letting out* Pus *lodged under the* Dura Mater. *A Tent of the like Figure made for drying up that which lies on the Membrane, but without a Lancet in it.*

Fig. 7. *A Syndon of fine Linen, which is to be wetted with ſome Spirituous Liquour, and laid on the* Dura Mater, *after Trepanning the Skull.*

Fig. 8. *Is another Syndon made of Lint, which ſome*

Practitioners wet with ſome Spirituous Liquour, and lay over the former.

Fig. 9. *Are ſmall Pledgits of Lint, which are to be arm'd with proper Medicines, and put into the perforation.*

Fig. 10. *A Pledgit of dry Lint put into the Hole of the Skull.*

Fig. 11. *Deſſils which are to be arm'd with proper Digeſtives, for the filling up the Lips of the Wound.*

Fig. 12. *A large Pledgit arm'd with ſome proper Digeſtive to lay over the Deſſils.*

Fig. 13. *A large Emplaſter of Betony, to cover the whole.*

TAB. II.

Fig. 14. *A large ſquare Compreſs ſeveral times doubled to cover the reſt.*

Fig. 15. *A Napkin folded for the making the great Cap for the Head, and which are the Dreſſings uſed in the Operation of Trepanning.*

Fig. 16. *The Napkin folded as it ought, for the keeping Applications on the Eyes, and all other parts of the Head. This is not, however ſo convenient after Trepanning as the Great Cap, becauſe it is not ſo certain, and do's not keep the Part ſo warm.*

Fig. 17. *Is a ſmall Machine of Steel Wire, to keep the Applications on the Part after the Operation of the* Fiſtula Lachrymalis. *Theſe Wires are uſually Steel, but common Iron Wire is preferable for the convenience of the Surgeon, that he may adapt them to the Part, when there is no Workman at hand to do it.*

Fig. 18. *Is the* Accipiter *or Hawk, to keep Applications on the Noſe. This is but an Amuzement, the Fillet with your Tails being more uſeful in this caſe.*

Fig. 19.

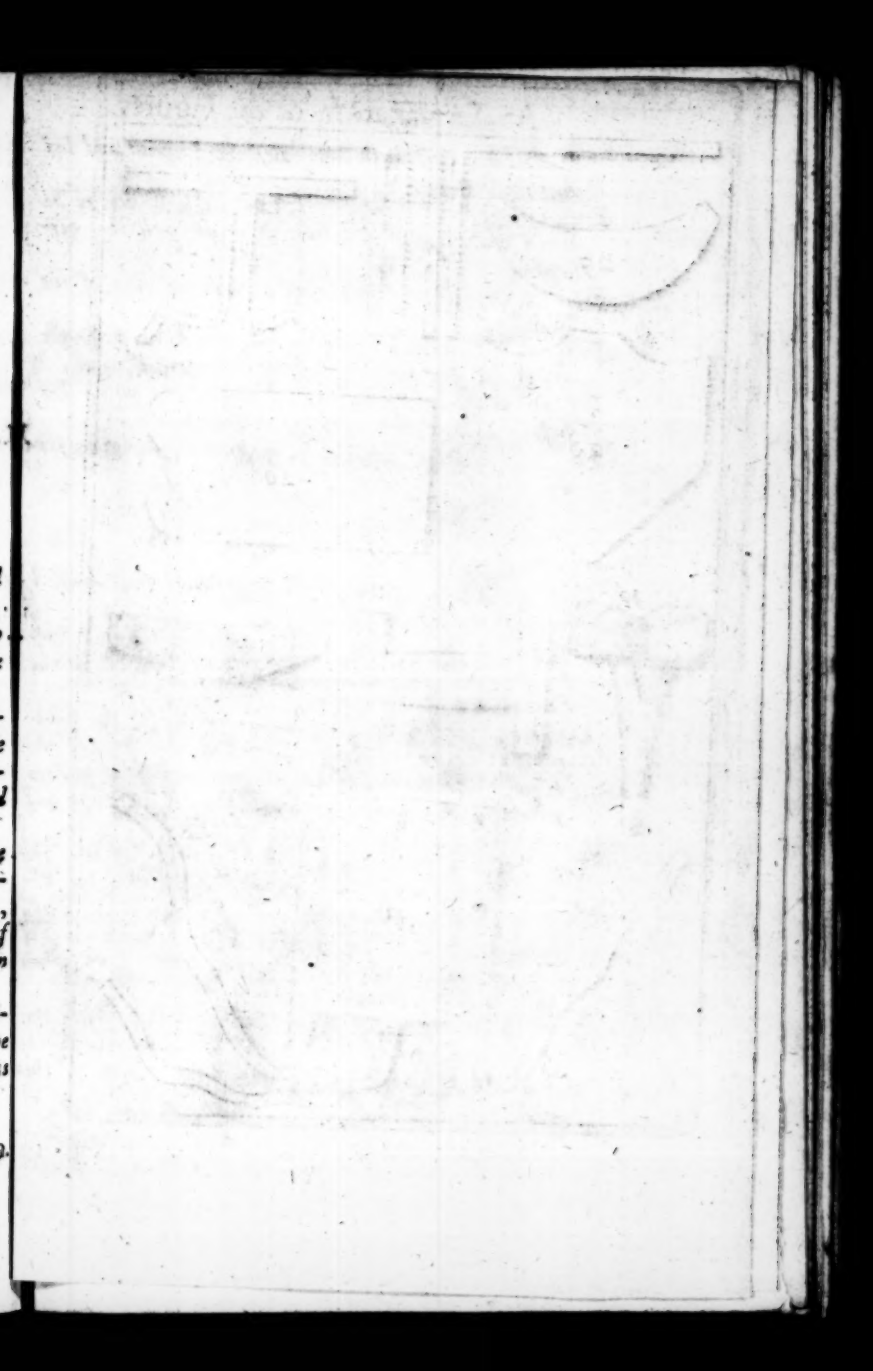


Plate 3d

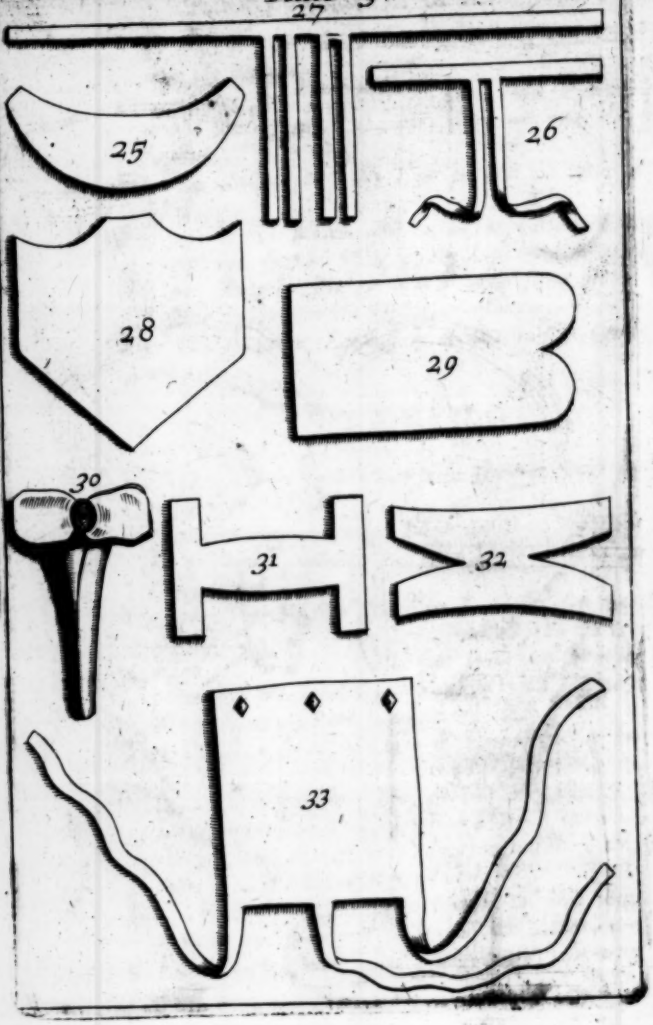


Plate 4.th

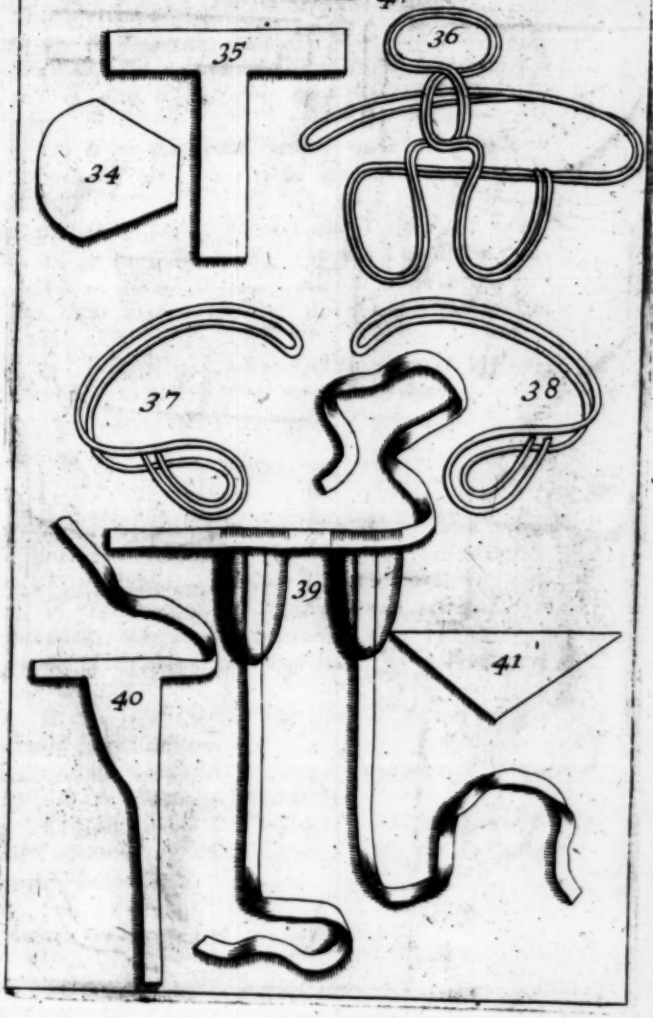


Fig. 19. *A Triangular Emplaſter to be laid on the Noſe. The Paſtboards applied on the ſide of the Noſe when it is Fractured or Luxated, muſt have the ſame Figure.*

Fig. 20. *Is an Emplaſter for the upper Lip, the two Branches of which are to be applied on the ſide of the Noſe.*

Fig. 21. *Is the Mask uſed in Burns of the Face.*

Fig. 22. *Is the Compreſs and Paſt board which is to be applied on the lower Jaw, when there is a Fracture and Luxation on one ſide only, and this Compreſs muſt be ſtitched to a Paſt board.*

Fig. 23. *Is the Compreſs and Paſt board to be applied, when there is a Fracture or Luxation on both.*

Fig. 24. *Is the Trapezial Emplaſter for the Chin.*

TAB. III.

Fig. 25. *A Semicircular Emplaſter for the Chin.*

Fig. 26. *The Bandage of* Heliodorus *for one Breaſt.*

Fig. 27. Heliodorus *Bandage for both Breaſts.*

Fig. 28. *The Emplaſter, Paſt board, and Compreſs for the* Sternum. *This is called* Scutum.

Fig. 29. *The Compreſs and Paſt board for a Fracture of the Ribs.*

Fig. 30. *A great Capped Tent put into deep Wounds to hinder their Coalition.*

Fig. 31. *An Emplaſter in form of a double* T, *to be laid on the* Cartilago Mucronata.

Fig. 32. *An Emplaſter and Compreſs for the Joynts, as the Arm or Leg. This Figure is proper for the adapting it to the Part.*

Fig. 33. *Is a Bandage for Iſſues, which is very convenient, becauſe the Patient can dreſs them himſelf.*

TAB. IV.

Fig. 34. *An Emplaſter and Compreſs for the* Metacarpus.

An Explantaion of the Figures.

Fig. 35. *A ſimple* T *for a ſmall Joynt, as the Fingers, when the Surgeon likes it better than the* ✝.

Fig. 36. *Is a ſmall Machine made of Wire, to prevent the Guts from protruding themſelves into the Groin and Navil. This muſt be lined, and is more convenient than a Steel Truſs, becauſe it yields to the Motion of the Belly.*

Fig. 37, *and* 38. *are Steel Truſſes, one for the Right, and the other for the left Groin. Theſe are beſt made of Iron, that the Surgeon may manage them better, when he has no Workman to aſſiſt him. They are drawn without any Lining, to ſhew their Figure.*

Fig. 39. *Is a Truſs made of Dimetty for the Groins in Children, and Adult Perſons, when the Deſcent of the Guts is recent, and not very conſiderable. There is no more than one Knob required, when the Rupture is only on one ſide.*

Fig. 40. *A Bandage for the Groin.*

Fig. 41. *A Triangular Emplaſter and Compreſs for the Groin.*

TAB. V.

Fig. 42. *The Common Truſs for both ſides.*

Fig. 43. *The Common Truſs for one ſide only.*

Fig. 44. *The Suſpenſory of the Napkin which goes round the Breaſt. The midſt of this is put about the Neck, and falls on the Shoulders.*

Fig. 45. *Is a ſuſpenſory for the* Scrotum, *two Straps of which croſs below, and going up are faſtned to the Waſt-band.*

Fig. 46. *A Contentive Bandage, to keep Applications on the Buttocks.*

Fig. 47. *An Emplaſter whoſe indented part paſſes between the Buttocks in a* Fiſtula in Ano.

Fig. 48. *Is a ſmall Caſe pierced at the End for the paſſage of the Urine, without removing the Dreſſings. The Tube is put into this Caſe, as well for the ſuſpending it*

in

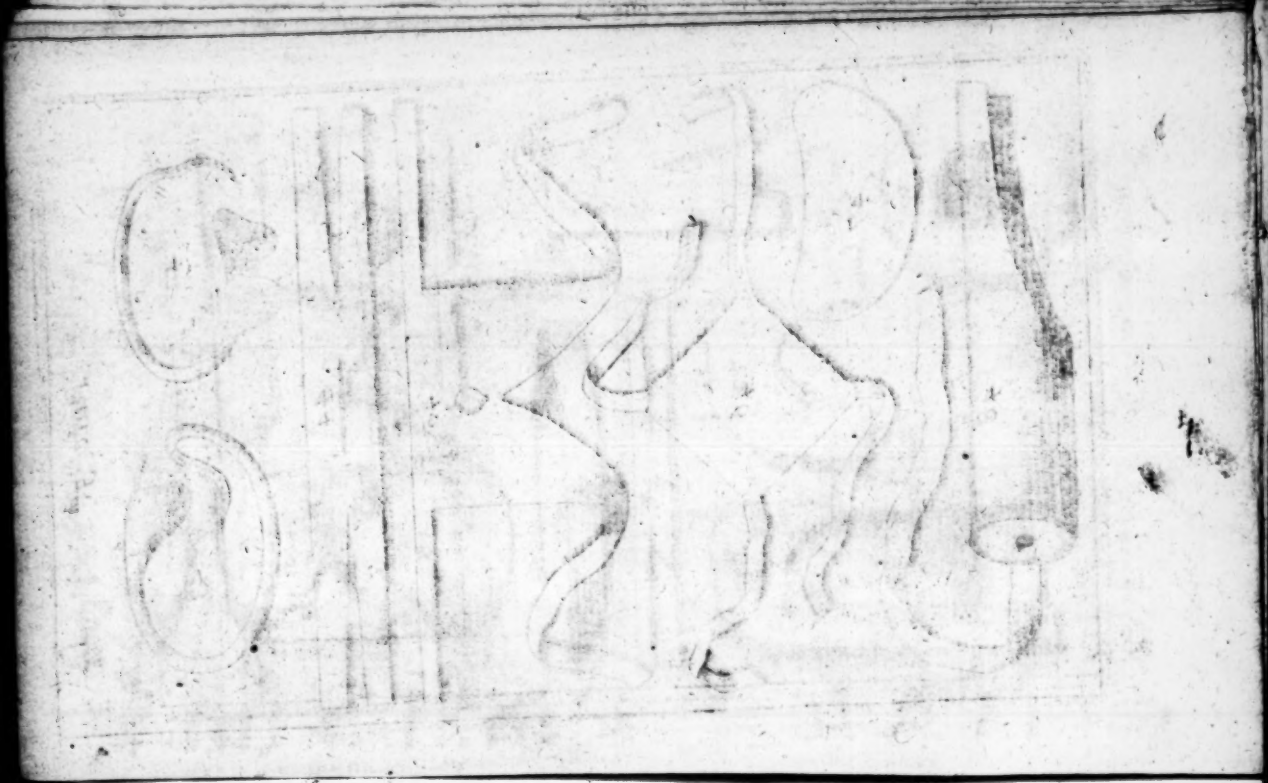
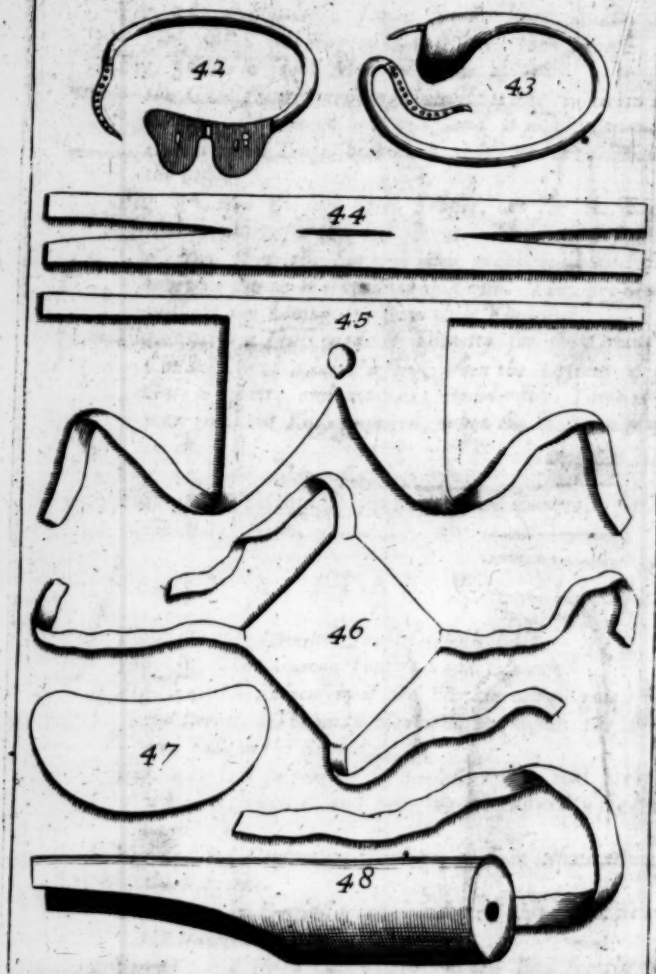


Plate 5.th



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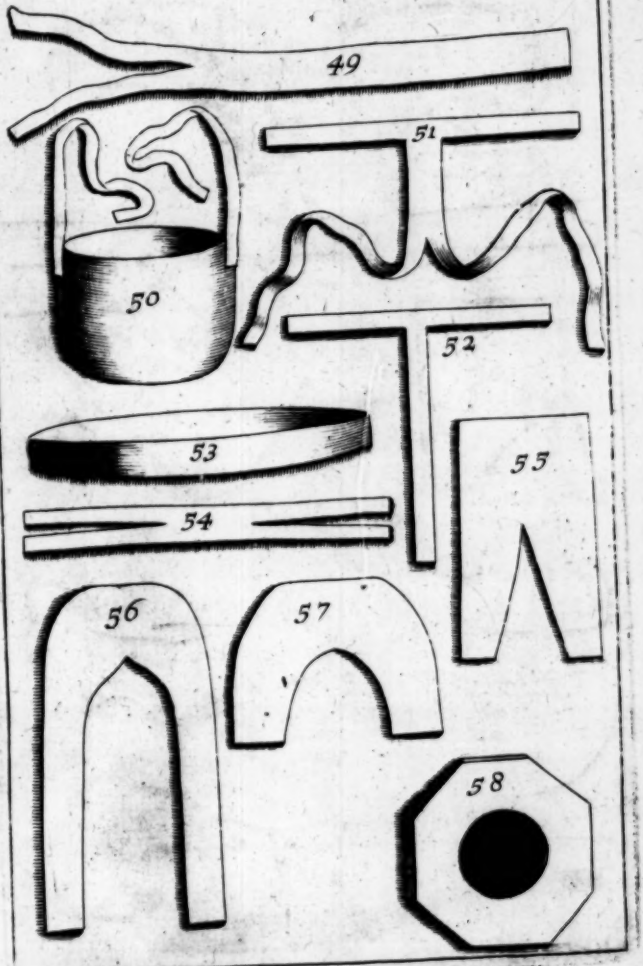

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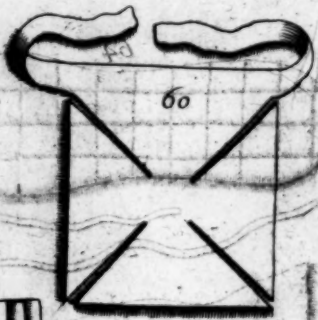

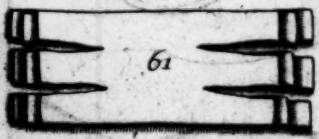

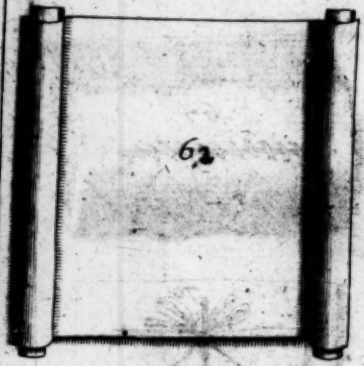

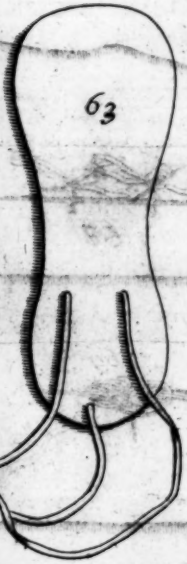

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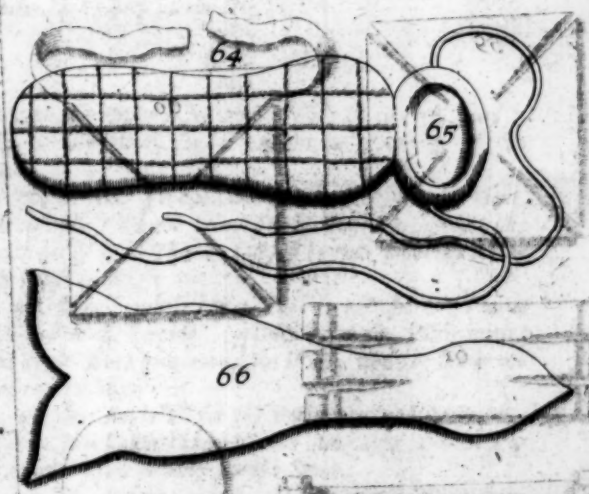

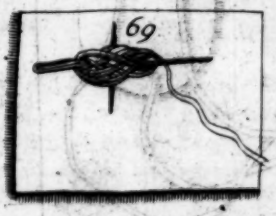

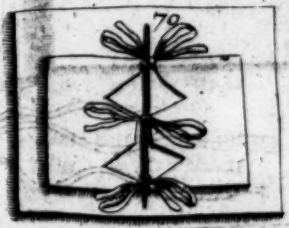

in involuntary Erections, as in a Heat of Urine or Priapiſm, as to keep on the Dreſſings.

TAB. VI.

Fig. 49. *A narrow Fillet with a Hole at one end, and a ſlit at the other, for a contentive Bandage of the Yard.*

Fig. 50. *A Bag for the Cods. This is very convenient, becauſe the Yard not being put into it, a Man may lie with his Wife. This is faſtned by two ſmall Tapes to the Waſt-band.*

Fig. 51. *Is a* T *whoſe lower Tail is cut ſhort. This is adapted to the keeping Applications on the* Perinæum; *the upper Strap goes round the Waſt, and the lower are faſtned to that.*

Fig. 52. *Is a ſingle* T *for the* Perinæum *and* Anus.

Fig. 53. *Is a Collar to keep on the ſling applied to the* Perinæum, *after cutting for the Stone.*

Fig. 54. *Is a Figure with four Tails, or the Sling mentioned.*

Fig. 55. *Is the Emplaſter in form of a* Greek U *laid on the* Perinæum.

Fig. 56. *Another Emplaſter for the* Perinæum.

Fig. 57. *An Emplaſter in form of a Horſe-ſhoo for the Womb.*

Fig. 58. *A Peſſary of Cork perforated in the midſt, to ſupport the Womb when it falls out.*

TAB. VII.

Fig. 59. *Is a Croſs, or the form of an Emplaſter to be laid on Stumps after Amputation.*

Fig. 60. *Is another Figure for the ſame purpoſe.*

Fig. 61. *Is the Bandage with* 18 *Tails, for Complicate Fractures.*

Fig. 62.

An Explanation of the Figures.

Fig. 62. *Junks for the Leg and Thigh in Compound Fractures.*

Fig. 63. *A Paſt-board to keep the Foot ſtreight.*

TAB. VIII.

Fig. 64. *A ſmall Quilt ſtitched to the Paſt board, for the eaſe of the Foot.*

Fig. 65. *A ſmall Roll for the ſupporting the Heel.*

Fig. 66. *An open Stocking us'd in Burns and Scalds of the Legs.*

Fig. 67. *The continued Suture or Glovers Stitch, uſed in Wounds of the Guts and* Scrotum.

Fig. 68. *The interrupted or ſeparate Stitch, uſed in the re-uniting Tranſverſe Wounds, when Bandage alone is not ſufficient.*

Fig. 69. *The twiſted Suture uſed in Hare Lips.*

Fig. 70. *The Dry Stitch.*

TAB. IX.

Fig. 71. *The Pin Stitch.*

Fig. 72. *The Quill Suture. This differs very little from the former, the Antients ſometimes uſing Pins, and ſometimes Quills to lay on the edges of the Wounds, and make their knots on, but both are uſeleſs.*

Fig. 73. *The Wire Stitch. Theſe are Wires made Circular, with which ſome have propoſed to keep together the Edges of a Wound, but it is very Whimſical, and never to be done, becauſe of the great Pain and Inflammation which muſt neceſſarily follow.*

Fig. 74. *The Shoomakers Stitch. This creates a great deal of Pain, and for that Reaſon muſt never be made.*

TAB. X.

Fig. 75. *Is the Scabbard makers Stitch, as in lacing.*

Fig. 76.

Plate 9.

Plate 9.th

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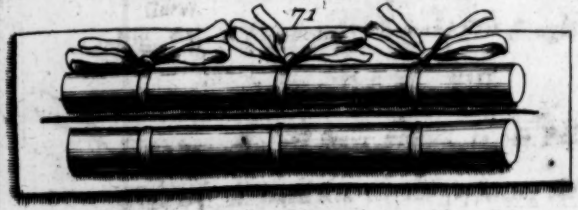

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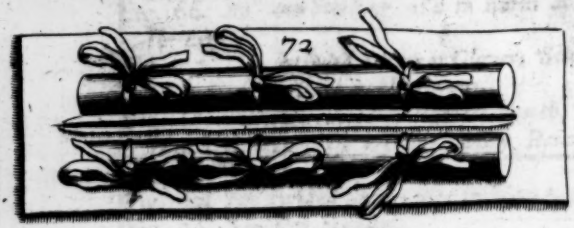

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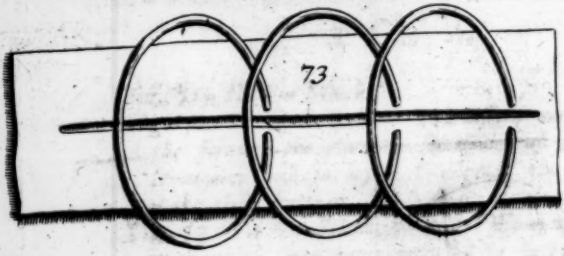

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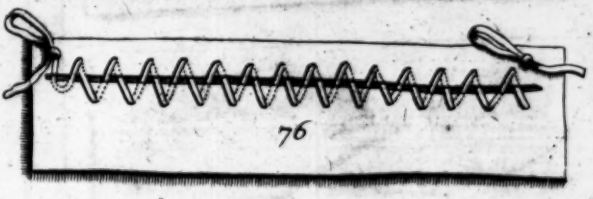
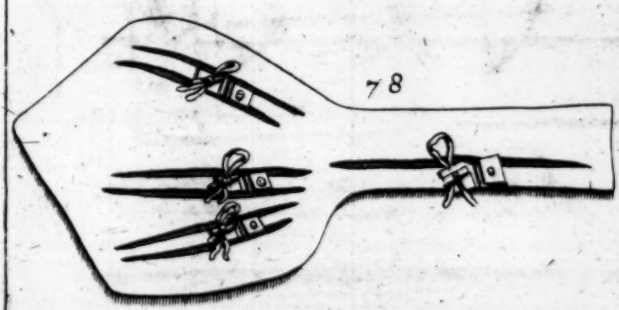
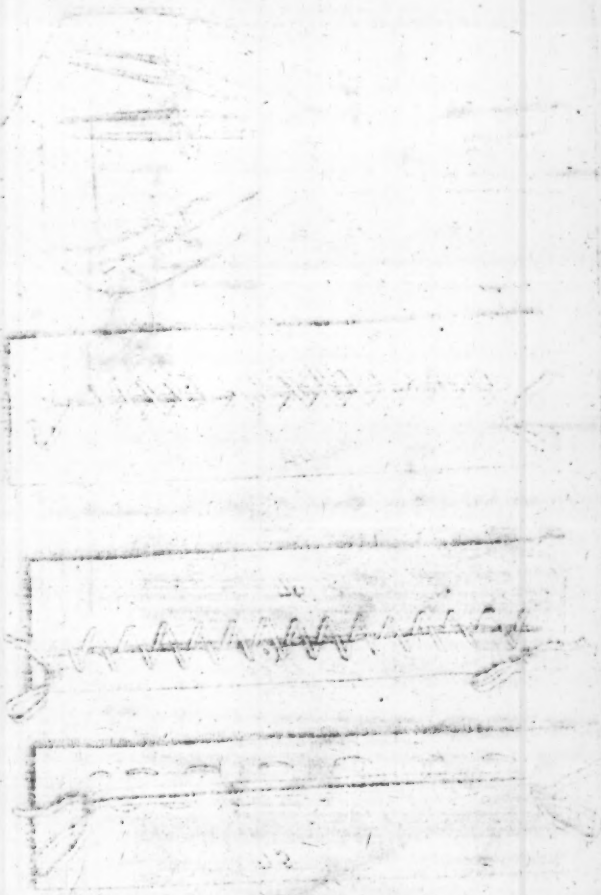
Plate 10th







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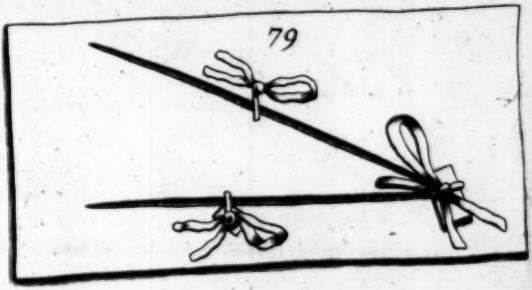

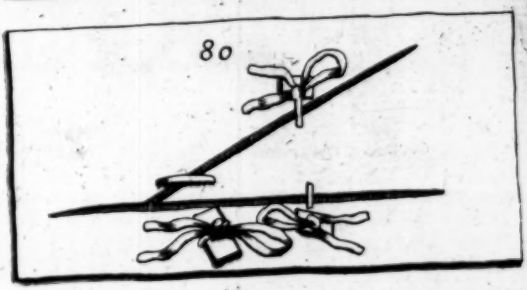

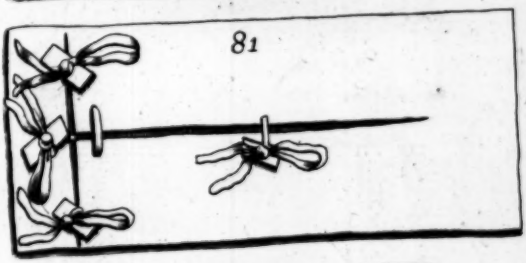

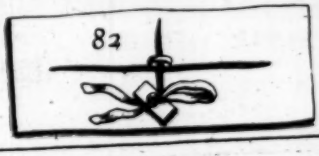

Plate 12.th

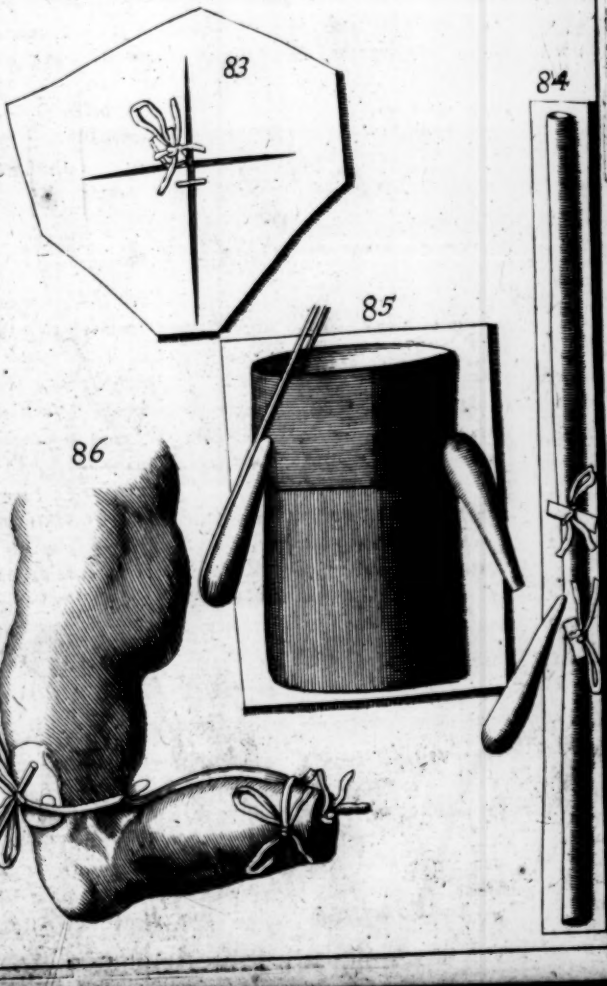

Fig. 76. *The Stitch from within outwards, and that from without inwards, which is never to be made, becauſe the Threads enter the Wound, and hinder its re-union.*

Fig. 77. *Is* Celſus's *Suture or the* X, *which is never to be made, for the ſame Reaſon as the former.*

Fig. 78. *Repreſents the manner of Stitching the Tendons.*

TAB. XI.

Fig. 79. *The Stitching of a Wound with one Angle.*

Fig. 80. *The manner of Stitching two Wounds, one of which is lengthways, and the other Tranſverſe with one Angle. The Tranſverſe is united by the help of the ſeparate Stitch, and the Longitudinal by the uniting Bandage.*

Fig. 81. *The manner of Stitching a Longitudinal and Tranſverſe Wound, making two Angles. The Tranſverſe is to be united by help of the ſeparate Stitch, and the Longitudinal, by the uniting Bandage, and the two Angles with two Stitches and a knot.*

Fig. 82. *The Separate Stitch, this is only made in ſhort Wounds.*

TAB. XII.

Fig. 83. *The Suture when there is four Angles. This is made with two Stitches and one knot.*

Fig. 84. *The Ligature of an Artery, after the Operation of an Aneuriſm.*

Fig. 85, *The Operation of a* Fiſtula *in* Ano. *The Bags on each ſide repreſent the* Fiſtula; *in one of theſe is a Probe bent for the drawing it, and the more eaſie cutting it with a pair of Sciſſars.*

Fig. 86. *The Amputation of a Leg with all the Dreſſings, the Ligatures above and below the Knee, the Paſt-board under the upper Ligature, which keeps the Part from*

from being pinched; the Longitudinal Compress on the Ham, and along the Stump, which is kept on by two Ligatures, and the Ligature of the Artery, which is at the end of the Stump.

Plate the first.